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Nesting, subsidiarity, and community-based environmental governance beyond the local level

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Abstract: Community-based approaches to environmental management have become widely adopted over the last two decades. From their origins in grassroots frustrations with governmental inabilities to solve local environmental problems, these approaches are now sponsored frequently by governments as a way of dealing with such problems at much higher spatial levels. However, this 'up-scaling' of community-based approaches has run well ahead of knowledge about how they might work. This article explores how Elinor Ostrom's 'nesting principle' for robust common property governance of large-scale common-pool resources might inform future up-scaling efforts. In particular, I consider how the design of nested governance systems for large-scale environmental problems might be guided by the principle of subsidiarity. The challenges of applying this principle are illustrated by Australia's experience in up-scaling community-based natural resource management from local groups comprising 20-30 members to regional bodies representing hundreds of thousands of people. Seven lessons are distilled for fostering community-based environmental governance as a multi-level system of nested enterprises.

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1. Introduction

Community-based collaborative approaches to environmental management have become widely adopted over the last two decades, in name at least. From their origins in grassroots frustrations with governmental inabilities to muster the resources and political will needed to find implementable solutions to local environmental problems, they are now sponsored frequently by governments as a way of dealing with such problems at much broader scales. Nevertheless, this 'up-scaling' of community-based environmental management has run well ahead of research into how it might work. It is hardly surprising then that successes in larger-scale community-based environmental management remain few and far between.

Even so, previous theoretical and empirical work by common property scholars offers a rich source of hypotheses for this research. One finding from this previous work seems particularly relevant for the extending community-based management beyond the local level. This finding resulted from E. Ostrom's (1990) analysis of 14 cases in which a common-pool resource (CPR) had been managed over multiple generations by a long-enduring regime of common property. She expressed this finding as the following design principle distilled from her larger-scale cases: 'Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities [of long-enduring common property systems of common pool resource management] are organized in multiple layers of nested enterprises' (Ostrom 1990, p. 90). Although this principle was not intended as a prescription for institutional design, it has served as a point of departure for researchers interested in how common property arrangements might work in larger-scale settings.

My purpose in this article is to explore what the 'nesting principle' means for contemporary efforts to pursue community-based environmental management beyond the local level. Following Gibson et al. (2000) and Cash et al. (2006), 'scale' is defined here as the temporal, spatial, quantitative or analytical dimensions used to measure or study any phenomenon, whereas 'level' refers to units of analysis located at different positions on a given scale. My focus here is particularly on the spatial scale. Hence, 'larger scale' is shorthand for 'higher level on the spatial scale', and so forth.

The remainder of the article follows in five sections. The logic of nested governance is reviewed in the next section. In the third section, I consider what we can learn from the principle of subsidiarity as a guide for up-scaling community-based environmental governance as a multi-levelled system of nested enterprises. Obstacles to applying these lessons are then considered in section four, together with possible solutions to these obstacles. These obstacles and solutions are then illustrated in section five with reference to Australia's experience over more than two decades in up-scaling community-based natural resource management from local groups comprising 20-30 members to regional bodies often represent-

ing hundreds of thousands of people. The final section summarises the preceding discussions, drawing together seven lessons for fostering the emergence of community-based environmental governance as a multi-levelled system of nested enterprises.

2. Reasons for nested governance of large-scale environmental problems

The potential advantages of nested governance for large-scale common pool resource problems are evident from various perspectives, including a 'collective action' perspective and a 'robustness' perspective. The collective action perspective begins with Olson's (1965) account of what became known as the 'free rider problem' faced by a large group perceiving a shared problem. This was translated by game theoreticians into an assurance (trust) problem, where obstacles to collective action derive from the difficulties group members face in assuring one another that they will desist from free riding on each other's efforts. Olson's solution was for a large group to reorganize itself as a federated system; i.e., as a small group of small groups, where 'small' denotes few enough members that solutions to remaining problems of trust become feasible.

The logic behind this solution was incomplete, however, since no explanation was offered for how members of the large group might surmount their collective action problem of reorganising as a multi-level system. E. Ostrom (1990) completed this logic by observing that collective action problems faced by large groups are often decomposable into smaller problems among which some are typically surmountable given pre-existing trust between some members. Hence, multi-level governance of large groups can be explained from this perspective as 'the eventual result of larger, more inclusive organizational units emerging from, and then 'nesting' …. smaller, more exclusive units that manage to self-organize sooner. Smaller organizations thus become part of a more inclusive system without giving up their essential autonomy' (Marshall 2005, p. 47).

The value of nesting lower-level units, rather than absorbing or sidelining them, follows in this perspective from the 'vertical' assurance problems that arise as governance becomes multi-levelled. Introducing a higher level assists lower-level actors with their 'horizontal' assurance problems only to the extent that they trust the higher level not to fail them (Marshall 2004a, 2004b; Putnam 1993). Retaining units that agents have self-organized, and minimizing restrictions on their autonomy, helps with vertical assurance problems since agents can be expected to place greater trust in units they create for themselves and in which they maintain collective-choice property rights.

The robustness perspective recognizes that the social-ecological systems normally addressed in community-based environmental management are complex adaptive systems for which optimal management decisions cannot be identified precisely at the outset (Anderies et al. 2004; Berkes et al. 2003; E. Ostrom 1999).

The positive-feedback dynamics driving adaptation within such systems can 'flip' a system non-linearly from one configuration to another, with the timing and direction of flips rarely predictable with accuracy (Berkes 2002). The risks of social-ecological systems flipping into configurations that are markedly less desirable, or even unsustainable, have prompted common property scholars to explore how governance choices for social-ecological systems affect their 'robustness'. Robustness has been defined in this tradition as follows: '[A social-ecological system] is robust if it prevents the ecological systems upon which it relies from moving into a new domain of attraction that cannot support a human population, or that will induce a transition that causes long-term human suffering' (Anderies et al. 2004, p. 7). There is value, therefore, in crafting community-based governance systems that contribute towards the robustness of the social-ecological systems they seek to manage.

In some circumstances but not all, nested governance may contribute towards the robustness of social-ecological systems involving larger-scale common pool resources (Lebel et al. 2006). These potential contributions arise in part from the increased scope, compared with monocentric multi-level arrangements (where coordination is expected to occur through a single integrated command structure), that nesting allows for decentralized decision making. E. Ostrom (1999) explained accordingly how decentralized decision making: (i) enhances access to local knowledge; (ii) increases the likelihood that informal institutional arrangements can be harnessed to exclude untrustworthy individuals; (iii) enables feedback on the performance of rules to be captured in a disaggregated way; (iv) allows rules to be devised that are better adapted to each local common pool resource than any general set of rules; (v) lowers enforcement costs by strengthening local perceptions of the legitimacy of rules, and also by making it easier to fashion rules that can affordably be monitored; and (vi) creates situations where 'multiple units are experimenting with rules simultaneously, thereby reducing the probability of failure for an entire region' (E. Ostrom 1999, p. 526).

The potential advantages of nested governance for robustness can arise also from how they complement a relatively decentralized system with higher governance levels capable of dealing with problems which exceed the current capacities of at least some lower-level units to solve by themselves (e.g., intractable problems of biophysical spillovers, discrimination, and inter-group conflict). The overlapping and redundancy of management units in nested arrangements may itself contribute to robustness. It enables information about rules that have worked for one unit to be conveyed more easily to other units. Also, it means that 'when small systems fail, there are larger systems to call upon – and vice versa' (E. Ostrom 1999, p. 528).

While the consequences of governance choices for the robustness of social-ecological systems will often be important, trade-offs typically exist in striving for robustness against different kinds of disturbances (Anderies et al. 2004; Lebel

et al. 2006). The advantages of decentralization for capturing local feedback on rules, for instance, might strengthen the robustness of a social-ecological system against localised disturbances at the same time as weakening its robustness to larger-scale disturbances (eg., if decentralization results in feedback from larger-scale disturbances arriving less promptly and accurately to the governance levels capable of responding satisfactorily to such disturbances). Trade-offs typically arise also between the benefits and costs of striving for further robustness against a particular type of disturbance. Increasing the number of local units experimenting with rules, or of governance levels to fall back on, will not always enhance robustness of a particular kind sufficiently to justify the opportunity costs. When weighing up such trade-offs, however, it is important to employ an unbiased methodology. The mainstream economic methodology (i.e., comparative statics) underpinning conventional cost-benefit analysis models all systems under analysis as mechanistic, and is blind consequently to the benefits of robustness in complex adaptive social-ecological systems. Marshall's (2005) framework for economic analysis of complex institutional choices remedies this deficiency and offers a rigorous method for comparing institutional options that differ in their consequences for robustness.

3. Which task at which level?

Most multi-level systems of governance remain essentially monocentric, with at least the key decisions undertaken through a centralised command structure. A nested system is polycentric, in contrast, since it comprises multiple decision-making centres that retain considerable autonomy from one another (V. Ostrom et al. [1961] 1999). Coordination of decisions across the system relies substantially on collaboration between multiple centres. Collaboration requires voluntary co-operation, which 'involves individuals or groups moving in concert in a situation in which no party has the power to command the behaviour of others' (Wondolleck et al. 2000, p. xiii). Accordingly, nested governance is co-management applied across two or more levels. It is important then to improve our understanding of the nesting concept given that: (a) co-management is the most widely discussed institutional arrangement for coping with commons management at more than one level (Berkes 2006); (b) its adoption is growing as states increasingly reach the limits of their authority and come pragmatically to negotiate agreements giving lower-level actors a real voice in decision making (Young 2006); and (c) efforts to establish nested systems remain handicapped by weak development of the relevant theory (Berkes 2002).

Young (2002) divided the challenge of multi-level environmental governance into two problems. The first is to decide how to assign governance tasks across the different levels. The second is to manage the cross-level interactions, or 'vertical interplay', arising from any assignment. He proposed that the best strategy for solving these problems lies in assigning tasks to the appropriate level of organiza-

tion and acting then to ensure that the resulting cross-level interactions yield actions that are complementary rather than conflicting. The remainder of this article focuses on the first step of this strategy.

Interpreting subsidiarity

The focus on the problem of assigning tasks across governance levels has revolved largely around the 'principle of subsidiarity'. Although various definitions of this principle exist, they generally share in common the implication that any particular task should be decentralized to the lowest level of governance with the capacity to conduct it satisfactorily. The original justification for this principle was moral, stemming from 'a conviction that each human individual is endowed with an inherent and inalienable worth, or dignity', and accordingly that all social groupings should ultimately be at the service of the individual (BIIC 2003, p. 2). This conviction implied that a higher level of organization should refrain from undertaking tasks that could be performed just as well by a grouping closer to the individual. The principle is now also widely hypothesized to have practical advantages for large-scale social problems. Schumacher (1973) drew public attention to these advantages when, in *Small is Beautiful*, he invoked subsidiarity as a key principle for successful large-scale organization. The nations of Europe adopted this principle as one of the central constitutional principles for the European Union (made effective with the signing of the Amsterdam Treaty in 1999). The relevance of this principle to community-based governance of larger-scale environmental problems has not gone unnoticed by common property scholars. For instance, McKean (2002, p. 8) proposed that the advantages of small groups in achieving voluntary cooperation be extended to large-scale common pool resource problems by means of 'nested groups … with subsidiarity'.

Despite endorsement of the subsidiarity principle as a guide for assigning tasks across a nested governance system, consensus on its interpretation is typically elusive. Mary Robinson (1996, p. 10), the 1997-2002 UN Commissioner for Human Rights, remarked that 'the chief advantage of subsidiarity seems to be its capacity to mean all things to all interested parties – simultaneously'. Nevertheless, Carozza (2003, p. 79) argued as follows that such criticisms derive from unrealistic expectations:

> The detailed criteria by which subsidiarity operates are not suited to abstract reasoning ex ante, but instead need to be worked out over time, and the conclusions to which it leads will always be contextual and dynamic …

At a minimum, he observed, the principle stimulates deeper consideration about how, in any context, tasks should be allocated vertically within a multi-level system. As it challenges presumptions that all governance tasks should be centralized, it also highlights how decentralization of all tasks to local levels is usually too simplistic. Moreover, the likelihood of the subsidiarity principle leading to a

multiplicity of interpretations can be beneficial to the extent that experimentation and learning is promoted by diversity across different governance systems in how tasks are assigned to different levels.

Even so, we are not without guideposts in applying the subsidiarity principle to design nested systems of community-based environmental management. There is much to learn from previous experience in this direction, and Ribot (2002, p. 3) proposed that we draw on this experience in developing 'environmental subsidiarity principles'. Some key lessons to date are considered below.

Appraising capacity

Consistent with the definition given above, McKean's (2002, p. 10) understanding of the subsidiarity principle is that it requires all tasks to be performed at the lowest possible level of governance. She proposed the following rule for deciding how low 'possible' is: an individual subunit of the governance system is free to undertake all the tasks that do not affect anyone in another subunit, 'but we move up a notch to a higher level if a subunit wants to engage in behaviour that will affect any other subunit'. Hence, any task is centralized to higher, more inclusive, levels until a level is reached where all individuals with a substantive interest in the task are represented adequately.

This proposal assumes that a subunit's capacity to perform a task depends only on whether the task can be fulfilled without conferring spillovers upon other subunits. However, the capacity of any subunit to perform a task at the same standard as a higher-level subunit will normally depend also on additional factors. A subunit may be able to perform a particular task without generating spillovers, yet may be at a disadvantage compared with a higher-level subunit in accessing all the physical, financial, human and social capacities needed to conduct that task adequately. When this is the case, it is reasonable to interpret the subsidiarity principle as justifying centralization of that task further than the level needed to represent all individuals with an interest in the task – but only to the minimum extent necessary to ensure that it is conducted to the required standard. For instance, governments can have advantages over local community-based groups in tasks like: establishing a legal framework which allows local groups to gain legally-enforceable acknowledgement of their identity and rights; and supplying formal conflict-resolution mechanisms when groups resolving their own conflicts would be too divisive.

For attempts to up-scale community-based governance through a process of nesting, the subsidiarity principle is particularly relevant to the task of deciding how nesting of subunits at progressively higher levels should occur. As observed by V. Ostrom et al. ([1961] 1999), it is a common mistake of governments and policy makers to underestimate the capacities of subunits at any level to self-organize governance arrangements to address problems for which they are currently 'too small'. It can sometimes be possible for subunits to deal with higher-level

(i.e., spatially broader) problems by reconstituting themselves to represent all key interests at that higher level. Otherwise, they may be capable of closing mismatches of this kind by cooperating voluntarily with one or more other units operating at a similar level, perhaps agreeing to federate to address such problems. Even if the former two possibilities are beyond them, they might still play key roles by participating in deliberations on the design of higher-level governance arrangements – particularly to ensure that the new arrangements add value to the self-organising capacities that do already exist. Denial of opportunities for such participation runs the risk of disenfranchising the lower-level subunits, leading them to cooperate less voluntarily with higher-level decisions than would otherwise be the case.

Building capacity

Where there is potential for a subunit at any level to overcome an existing capacity shortfall, the subsidiarity principle implies an obligation on higher-level enterprises, including governments, to help realize that potential. Building capacity involves a 'chicken and egg problem' (Ribot 2002, p. 15). Typically there is reluctance to decentralize tasks to lower-level subunits before their capacity has been proven, even though it is impossible to establish such proof until decentralization has occurred. One solution to this problem is to begin by decentralizing simpler tasks for which lower-level capacity is clearly evident and/or the costs of failure would not be severe. This strategy has been followed since 1979 in the Gal Oya district of Sri Lanka to revive an abandoned irrigation system that was the largest in the country and reputedly the most run-down. McKean (2002, p. 17) reported the outcome as follows:

> Each small success improved the confidence level of the farmers and led to a larger success. In this way the project and the farmers struggled, from the bottom up, to create social capital where there was none. … [The] project achieved a remarkable turnaround in the functioning of the system and agricultural production, in farmer confidence in tacking all sorts of other problems, and eventually in the government's new-found respect for these farmers.

Nevertheless, attempts to emulate the success of such capacity-building efforts overlook frequently what is probably the most fundamental reason for success: the successful efforts are demand-led. Individuals participate in capacity-building activities only to the extent that they expect participation to further their goals. For people to perceive that participation in capacity-building activities will further their goals, they must have secure rights to reap benefits from exercising the capacities developed. In many environmental projects, like those concerned with biodiversity, these favourable conditions are unlikely to exist at the outset. Moreover, often the resources to be conserved are not already valued highly by those whose participation is sought.

4. Barriers and bridges to subsidiarity

Barriers

Cases where lucrative management rights are decentralized to local communities are rare. More often, governments retain such rights for themselves, transferring only those rights with minimal commercial value. Meanwhile, fiscal crises are driving governments to decentralize the least tractable problems. In the few cases where valuable rights are transferred, central governments often attach conditions to these transfers such that local authorities are left little discretion in how to exercise their new rights. For instance, Ribot (2002) discussed how democratically-elected local governments were established in Mali and Uganda as recipients of decentralized management rights. However, the local authorities were required to use these rights in accordance with restrictive management plans imposed by the central government, which effectively 're-recentralize any autonomy implied by the transfer of rights' (Ribot 2002, p. 7).

Advantages of decentralizing commercially-attractive management rights for mobilizing local people and building their capacities are often undermined also by governments not securing these changes adequately. Decentralization decisions often occur through ministerial decrees or administrative orders, which are less secure than decisions established in law. Ribot (2002) reported that decentralization of collective-choice property rights for natural resources was called for in Mali's environmental legislation, such as the 1996 forestry code, but that this did not prevent actual decentralization decisions being left to the discretion of the ministry responsible for forests. Until purported decentralization initiatives are given the security of law, they are less concerned with effectively decentralizing rights than with delegating privileges.

Most governments are better at talking about decentralization than doing it. One aspect of this problem derives from higher-level organizations generally, and central governments in particular, tending to overestimate the pace at which lower-level subunits early in their life cycle can build their capacities to perform demanding tasks. Uphoff et al. (1998, p. 33) observed that this mistake arises usually from 'a linear way of thinking about schedules, expecting to accomplish equal amounts of work during each time period, rather than having a logistic (S-shaped) curve in mind'. The logistic perspective allows decentralization to proceed gradually, allowing lower-level capacities to accumulate incrementally until capacity reaches the critical mass at which the pace of decentralization can be accelerated.

The more fundamental part of the problem, however, is usually opposition to effective decentralization from parties with vested interests in preserving the status quo. Governments and other actors that ordinarily have benefited from central-

ized collective-choice property regimes are reluctant often to relinquish or share them. Central governments are often especially wary of catalysing 'people power' through effective decentralization. Baland and Platteau (1996, 379) observed that it is not uncommon in developing countries for governments to seek to control local community attempts to self-organize, 'particularly so if these attempts result in the development of large scale grassroots movements or networks or in assertion of claims for more autonomy'.

Strategic behaviour by governments in responding to pressures for decentralized environmental decision-making is not limited to developing countries, as is made clear by Sproule-Jones' (2002) account of repair efforts for degraded environments of 43 Areas of Concern (i.e., bays, harbours, and river mouths) along the shorelines of the Great Lakes in North America. In 1985, the Governments of Canada and the U.S.A. were requested by the International Joint Commission (established by those governments to address their transborder problems) to develop remedial action plans for each of the 43 areas. The federal governments were required to involve local stakeholders in the plan development process, although they were given autonomy in choosing stakeholders and in designing the rules under which their interests would be accounted for. Public officials running the program made much of the program's achievements in engaging stakeholder participation. One group of officials wrote about the remedial action plan program that:

> … different organizations, agencies and stakeholders [are viewed as] equal members of a team … Sharing decision-making power and accepting responsibility for action is requisite, as no single agency or organization has the capacity to plan and implement remedial action plans (Hartig et al. 1995, 8, quoted in Sproule-Jones 2002, 106).

The power-sharing reality was decidedly less generous. The governments that were empowered to decide institutional arrangements for the program were content with establishing stakeholder organizations to provide them with input to decisions made elsewhere. The remedial action plans that eventuated were layered into pre-existing government programs. Accordingly, 'it was the interests of the lead agency (or agencies) that prevailed … remedial action plans … were designed to maintain existing powers and immunities …' (Sproule-Jones 2002, 109).

Lack of government commitment to effective decentralization is partly the result of rent-seeking by those politicians, officials and others benefiting from the status quo through power, salary, access to political influence, and so on. The ability of such parties to impede effective decentralization results not only from any formal authority allocated to them (e.g., through legislation) but also from any de facto powers they can use to their advantage. The most obvious of such de facto powers are those of an economic form that derive from central governments

typically controlling much of the material resources available to the public sector. Nevertheless, Young (2006, p. 5) observed that de facto powers can derive just as much from cognitive hegemony, which is 'the ability to control the discourses embedded in environmental or resource regimes …'.

Supporters of maintaining centralized collective-choice property regimes are perhaps no different from anyone else in seeking to exercise cognitive hegemony given that 'those steeped in the cognitive processes and decision-making practices associated with each level typically regard their way of doing things as preferable to others, and push more or less aggressively for changes that would move the whole, multi-level system toward their own mode of operation' (Young 2006, p. 13). Even so, supporters of the status quo are advantaged in preserving dominance of their favoured discourses, since when a pattern of vertical interplay takes hold 'stakeholders become attached to the way things are done, existing social practices become routines, and the status quo turns into the default option' (Young 2006, p. 13).

The cognitive hegemony that supporters of centralized government still enjoy in resisting effective decentralization of collective-choice property rights owes much to the logic of mainstream economics. This logic has come to provide arguably the most important intellectual justification for the Progressive model of centralized government in liberal-democratic politics (Ezrahi 1990; Nelson 1987). In its original form, the Progressive model envisioned centralized definition of public policy objectives by politicians, with these objectives to be realised through centralized direct administration. The model's presumption of direct administration as an efficient means of achieving public objectives steadily lost intellectual support after WW1, although it continued to exert cognitive hegemony over public discourse. Mainstream economists succeeded post-WW2 in filling this intellectual void by revising the Progressive model. Policy objectives were still to be decided centrally by politicians. However, these objectives were now seen as best achieved through centralized manipulation of the 'market mechanism' (Marshall 2005, 9-26; Nelson 1987). With economic analysis presumed capable of the accuracy needed for this manipulation, there remained no need under the revised Progressive model for policy makers to concern themselves with building robustness into the systems to be managed.

Moreover, the economic logic employed by mainstream economics in lending intellectual legitimacy to centralized governance, albeit now via manipulation of the market mechanism, was essentially Olson's (1965) mechanistic logic as discussed earlier; i.e., concluding that large-group problems of collective action cannot be solved efficiently without external intervention. Interpretation of the subsidiarity principle through the lens of such logic clearly subverts its intended devolutionary spirit. Frey and Eichenberger (1999, p. 60) remarked accordingly

that its inclusion in the Amsterdam Treaty has not been:

> … a strong constraint to centralization. There is hardly a government activity for which it cannot be argued that it causes some transnational spillovers … Therefore the [European Commission] can always argue that centralization is compatible with the subsidiarity principle.

Such is the nature of cognitive hegemony that most people subjected to it come to accept as common sense the presumptions of the discourse it supports. Ribot (2002, p. 7) observed accordingly that often the reluctance of central governments to decentralize natural resource management more than nominally 'can reflect genuine, but often misguided or vague, concerns about maintaining standards, social and environmental well-being, and political stability'. Berger and Neuhaus (1996, 148) referred to this as a problem of 'sluggish mindsets'. Particularly relevant for the present discussion is the lingering perception by many policy makers that the multiplicity of organisational subunits in polycentric systems of governance – including subsidiarity-guided nested systems - is necessarily inefficient. The typical judgements of policy makers that V. Ostrom et al. ([1961] 1999) recorded almost half a century ago – i.e., that polycentric systems entail 'duplication of functions' and 'too many governments and not enough government' – remain influential today.

Bridges

The barriers presented by vested interests and sluggish mindsets to effective decentralization can often be bridged. Uphoff et al. (1998, p. 177) found that enduring success here depends on 'maintaining a strategic long-term view and commitment, grounded on solid support from rural populations, and balanced by short-term tactical moves that build up goodwill and blunt attacks …'. Demonstrating good performance can be a particularly powerful way of turning opposition into support, even if only of a grudging kind. Alternatively, opposition might be avoided by 'flying below the radar' until enough capacity evolves to withstand or outmanoeuvre it. Another common way to win over higher-level support for effective decentralization involves forming alliances. Such alliances can allow the bottom to co-opt the top.

Patience is needed most in challenging the cognitive hegemony exercised by those who support central governments retaining key collective-choice property rights. The difficulty of arriving at a governance system with wide legitimacy, by finding an accommodation between the perspectives of all actors whose cooperation is required for the system to succeed, has been labelled the challenge of plurality (Cash et al. 2006). Berkes (2006) identified this challenge as the most pervasive scale-related obstacle to success with community-based environmental governance and proposed that its solution lies in deliberative discourse. Such discourse relies on 'establishing conditions of free public reasoning among equals

who are governed by the decisions' (Cohen 1998, p. 186).

The problem with deliberative discourse as a solution is that it depends on those advantaged by the status quo, including government agencies, refraining from exercising their advantage when they enter deliberation. Yet this problem is sometimes overcome through committed leadership within the ranks of government agencies, as documented by Koontz et al. (2004) in the case of community-based watershed management by the Animas River Stakeholder Group (Colorado, USA), and by Marshall (2002, 2004b, 2005) in the case of industry-based salinity management in Australia's Murray-Darling Basin. Otherwise, its solution often lies in preparing strategically for what Young (2006, p. 14) called 'those rare and ordinarily brief periods in which opportunities arise to introduce more fundamental changes in existing institutional orders'.

In the next section, we illustrate some of the barriers and bridges to subsidiarity identified above with Australia's attempts over more than two decades to decentralize collective-choice property rights in respect of natural resource management in such a way as to 'up-scale' community-based natural resource management programs from the local level to the level of large regions.

5. Up-scaling community-based conservation in Australia

Over the last two decades in non-metropolitan Australia, a government-sponsored experiment in community-based conservation has evolved rapidly. The experiment has centred on the delivery of federal and state/territory government funds to landholders to undertake the kinds of on-ground actions needed to address the nation's mounting problems of natural resource degradation. During these decades the focus of the experiment has been up-scaled from local groups (typically involving 20-30 farmers) to regional bodies (sometimes representing populations of hundreds of thousands).

The origins of this experiment lay in the 1983 release of Australia's National Conservation Strategy which identified local community participation as essential to realising natural resource management (NRM) objectives. Curtis (1998) explained how this emphasis arose from the influence of rural development theory which emphasised local self-help supported by change agents. The experiment gained momentum when the Australian (federal) Government established the National Landcare Program ('Landcare') in 1989. The $A340m allocated over a decade to the program was intended to catalyse local activity by supporting formation and facilitation of landcare groups. By 1997, an estimated 4,270 landcare groups were operating.

Meanwhile, state and territory governments were establishing integrated catchment (watershed) management programs in recognition of the interrelatedness of natural resource management issues. The catchments delineated were much wider in scale than the local landscapes around which landcare groups formed. Community representatives were in the majority on catchment management committees,

and the committees were responsible for developing catchment-level strategies for on-ground action. Given fears that 'a regulatory approach to [integrated catchment management] could focus farmers' energies on resisting interference from bureaucrats rather than on improved land management' (Hollick 1992, p. 51), the committees were expected to achieve voluntary cooperation from those they depended on for implementation of their strategies. Landcare groups thus became embraced by governments as important vehicles through which integrated catchment management would be implemented.

In 1997, the federal government established the Natural Heritage Trust ('Trust') with a contribution of $A1.25b over five years. The federal government required that a Regional Assessment Panel be established for each 'region' (now often substituted for 'catchment'), to recommend on funding applications in accordance with a regional strategy. These Panels were formed generally from existing catchment management committees. These recommendations were considered by State Assessment Panels in making final recommendations to the responsible federal minister.

There is no question that these policy developments constituted significant decentralization of collective-choice property rights to participate in deciding how public funds for on-ground natural resource management activity should be allocated between competing bids. However, it is less clear that this decentralization occurred consistently with the ethos of subsidiarity. This ethos was implicit in the facilitated-self-help concept from rural development theory that attracted farmers to community-based natural resource management in the first place. The decentralization was not to landcare or other local groups but to catchment or regional bodies operating at a much higher spatial level of governance. Consider, for instance, landcare groups operating in the catchment of the Blackwood River in the south west of Western Australia. The regional body then made responsible for recommending on funding applications from these groups was the Blackwood Basin Group, which covers a region comprising 22,570 km2 and 37,000 people.

In general, moreover, governments did not consult landcare and other local groups when deciding how to up-scale the experiment in community-based natural resource management that the groups had embarked upon. The Blackwood Basin Group was rare among regional bodies in taking upon itself a commitment to consult proactively with its constituents when deciding on its structures and procedures for making funding recommendations. The outcome was a nested intra-regional system of governance called Zone Action Planning. The region was divided into nine zones, with each zone participating in decisions over regional funding recommendations through a committee nominated by its population. However, local groups in most other regions had far less say. Governments implicitly presumed that their fiscal dominance, as final arbitrator of regional recommendations for allocation of Trust funds, was sufficient to obtain the cooperation needed from local groups and their members. The upshot was that levels of volun-

tary cooperation were undermined significantly in many regions, with many local groups coming to view the so-called community-based regional natural resource management bodies as 'just another level of bureaucracy' (Ewing 2000, p. 115).

Only a year after the Trust was established, pressures were emerging to better align it with the Australian Government's new commitment to 'effective federalism'. This commitment drew its inspiration from the New Public Management (Crowley 2001) which since the 1990s has become a dominant paradigm for public sector management around the world (McLaughlin et al. 2002). It sees government as 'steering not rowing', using market and quasi-market mechanisms in delivering public services, and separating politics from the management of public services (Carroll et al. 2002). It thus represents the ascent of the Progressive model of governance (as updated post-WW2 by mainstream economics) to a position of pervasive cognitive hegemony. The outcome in Australia has been a rapid rise in governments 'purchasing' the production of public services from 'providers'.

Such pressures bore fruit in late 2000 when the Council of Australian Governments endorsed the National Action Plan for Salinity and Water Quality. This program involved the federal and state/territory governments committing $A1.4b over seven years to ameliorate salinization and water quality problems in regions most affected by these problems. The communities of these priority regions would be organized into appropriate bodies, each funded on the basis of an integrated natural resource management plan accredited jointly by the relevant governments. In 2001, the federal government extended the Trust for a further five years, by contributing an additional $A1b to be shared between the 56 natural resource management regions newly delineated across the nation. Funds from the Trust extension would be delivered principally through regional bodies, via the same kind of purchaser-provider arrangements established for the National Action Plan. These inter-linked institutional arrangements became known as the 'regional delivery model'.

The new set of 56 regions covering the nation was considerably smaller than that operating under the original Trust arrangements. Reducing the number followed partly from arguments that the existing regions were too small for effectively integrating the management of inter-related environmental problems. It followed also from the federal government's determination to become more involved in ensuring accountability of the bodies it funded, and thus to maintain a governable number of regional bodies from its perspective. Many regions constituted under the original Trust thus found themselves relegated to sub-regions of the regions newly defined from the top. The Blackwood Basin Group, for instance, found itself as one of six subregional bodies covering the new region for which the South West Catchments Council assumed responsibility.

Adoption of the regional delivery model constituted a further clear step in the process of decentralizing responsibilities for allocating public funds to on-ground activity in natural resource management. Like the previous step, this one was

guided little by subsidiarity or rural development theory. It was driven predominantly by the needs of governments as 'purchasers' of on-ground natural resource management outcomes, as perceived through the lens of New Public Management, and little by feedback regarding the needs of the regional, subregional and local entities now viewed as 'providers' of these outcomes .

The Council of Australian Governments argued when establishing the new model that the new regions represented the most effective level for engaging the community in natural resource management (COAG 2000). This position was reiterated recently as follows: 'The community ownership principle … reinforces the biophysical importance of the region as a basic unit for natural resource management programme delivery' (NRMMC 2006, p. 5). Nevertheless, this position remains unsubstantiated by evidence (Lane et al. 2004). Indeed, most regional bodies are struggling to find workable arrangements for genuine community-based governance given the size of the regions with which they are now expected to engage. At 51,657 km2, for instance, the area of the South West Catchments Region is 2.3 times greater than the area over which the Blackwood Basin Group was earlier expected to gain community ownership. The up-scaling was even more dramatic population-wise, with the Region's population of 193,000 exceeding the Blackwood Basin's by a factor of 5.2. In addition, the challenge for the South West Catchments Council in building community ownership from this population was amplified considerably by sub-regional perceptions, as reported at a workshop convened by the author in 2005 that 'we had a region imposed on us'. The Regional Implementation Working Group (2005) found accordingly that community engagement under the regional delivery model remains a formidable challenge, with many community groups seeing the new regional bodies as remote from the 'real' community.

This challenge was made even more difficult by the continuing reluctance of federal and state/territory governments to loosen their control of decision-making by the regional bodies, including in respect of their intra-regional governance arrangements. In order to retain access to funding, regional bodies must comply with stringent upward accountability measures imposed by the governments. Demonstrating compliance with such measures makes it hard for regional bodies to be perceived as community-based since it consumes resources that could otherwise be used on projects of interest to the community, and involves bureaucratic processes that are a 'turn off' to voluntary community engagement. It also skews their energies towards activities that demonstrate immediate progress against the easily-measured indicators on which accountability tends to focus, and away from longer-term investments ultimately vital for community engagement (e.g., nested systems helping to build trust) but for which indicators are difficult to monitor. The South West Catchments Council, for instance, faced an uphill battle convincing government to fund the nested governance system previously established within its Blackwood Basin subregion. A workshop participant from this subre-

gion remarked that 'I think we've built well from the bottom. But we're uneasy with what's been built from the top and hoping it's not going to destroy what we've built'.

The Natural Resource Management Community Forum (2004) (comprising chairs of regional bodies) urged governments to reduce governmental micro-management and recognise regional bodies as equal partners. In its federally-commissioned review of the regional delivery model, RM Consulting (2006) warned that continuing governmental lack of confidence in these bodies would deprive them of the flexibility they require to create structures and processes capable of winning the trust and enthusiasm of those whose cooperation is needed for on-ground implementation of regional natural resource management plans.

Along with the fiscal dominance that has allowed governments to retain substantial control over regional bodies, the cognitive hegemony of ideas from New Public Management has played an important role. These ideas are now commonly interpreted through the mainstream-economic lens of agency theory which holds that it is feasible for any principal, including the state, to design centrally an incentive system that aligns to its own interests the interests of lower-level agents on which it depends (Miller 1992). Although the New Public Management refers commonly to these principal-agent, or purchaser-provider, relationships as 'partnerships', these are partnerships of a very limited kind wherein principals buy cooperation from agents on terms decided by the former without participation from the latter. Nevertheless, 'partnership rhetoric' continues to resonate with those retaining faith with the original community-based vision for decentralized natural resource management. Lockwood et al. (2005) observed accordingly how use of this rhetoric in Australia continues to succeed in co-opting supporters of a community-based approach into what essentially remains a top-down policy agenda.

Despite these sources of power available to governments in resisting the effective decentralization of collective-choice property rights to community-based natural resource management processes, supporters of such decentralization have reasonable grounds for longer-term optimism. Regional bodies are joining forces with increasing effectiveness to counter-balance governmental power with powers borne of solidarity and superior knowledge of what is feasible on the ground. The Natural Resource Management Community Forum held annually for chairs of regional groups across the nation is becoming increasingly effective in this respect, with its recommendations clearly influencing the advice governments are receiving from the consultancies they commission. The Regional Groups Collective has been providing similar advantages specifically for groups in the state of Queensland. It has also facilitated groups sharing with one another the knowledge they need to work more effectively and thereby strengthen their case for increased autonomy.

Increasingly too, the cognitive hegemony exercised by New Public Manage-

ment in this policy domain is eroding as policy makers at all levels (including regional, subregional and local) become exposed to intellectual advances over the last few decades that have added considerable analytical rigor to the rural development theorising upon which the Australian experiment in community-based natural resource management was originally founded. For instance, the potential value of nested governance as a way of up-scaling community-based natural resource management in Australia has been highlighted by researchers including Bellamy et al. (2002), McKean (2002), and Marshall (2002).

Experience is also a powerful teacher. Government policy-makers have learned over the seven years since the regional delivery model was announced that a purchaser-provider model of natural resource management governance is much more complex in practice than agency theory led them to expect. Meanwhile, their increasing exposure to ideas from the science of complexity (e.g. Walker et al. 2006) is bringing about a deeper understanding of what authentic community-based collaboration can contribute to adaptive management of complex social-ecological systems. As one officer leading the Western Australian Government's involvement in the regional delivery model stated: 'My fundamental belief is that we are going to get a far greater return on the dollars invested if we spend it on building the capacities of communities out there to manage their own problems in the longer term, to put it into developing people and processes'.

Encouragingly too, a recent federally-commissioned report on future directions for Australian natural resource management found from interviews with stakeholders that 'autonomy for local groups is important … An important issue is how to most effectively link the enthusiasm and knowledge of these local groups with … processes that occur at a regional scale. One successful model in creating this link has been through the establishment and support of subcatchment groups. These groups are close enough to the ground to understand the needs of smaller groups but are typically more strategically placed and better able to provide coordination and administrative support for larger-scale project delivery' (Keogh et al. 2006, 39-40).

6. Summary and lessons

In Australia at least, it seems policy makers are beginning to take seriously the challenge of decentralizing environmental governance in ways that actually deliver the community ownership and voluntary cooperation that they previously assumed would arise automatically. However, knowledge to face this challenge remains limited. This article sought to help close this knowledge gap in section two by clarifying the nature of the challenge from two complementary perspectives – collective action and robustness – and by exploring the relevance of E. Ostrom's 'nesting principle' to both perspectives. Sections three and four sought to narrow the gap further by considering the problem when designing a nested governance system of deciding how to assign tasks across different levels of that

system. Seven key lessons emerged from that discussion, which can be summarised as follows:

1. Allocate tasks across levels in accordance with the principle of subsidiarity; i.e., decentralize each task to the lowest level with capacity to conduct it satisfactorily.
2. The capacity at a given level to conduct a task satisfactorily depends partly on whether all actors with an interest in the task are represented at that level.
3. The capacity at a given level to perform a task satisfactorily depends also on whether there is sufficient access at that level to all the capacities needed to achieve that standard of performance.
4. The capacity at a given level to perform a task satisfactorily can often be enhanced through strategies seeking to strengthen access to the requisite capacities. Subsidiarity obliges actors at higher levels to explore such opportunities before ruling out the possibility of decentralizing tasks to lower levels. Meanwhile, it cautions against over-optimistic expectations of how quickly lower-level capacities to cope with decentralization can be developed.
5. Actors tend to participate in activities designed to build their capacities only when they expect participation to help further their goals. Capacity-building efforts are therefore unlikely to succeed unless the target population has secure rights to benefit from the capacities developed.
6. Units assigned tasks in accordance with the subsidiarity principle should be allowed as much autonomy as possible in how they decide to conduct those tasks.
7. Despite any rhetoric to the contrary, government actors often perceive a vested interest in resisting authentic application of the subsidiarity principle. Their success in resisting derives just as much from fiscal dominance and cognitive hegemony as it does from formalised powers. When authentic subsidiarity does occur, this is often due to strategic bottom-up efforts to overcome this resistance by mobilizing a bandwagon of support from higher levels.

The last of these lessons was illustrated in the penultimate section which considered the development over more than two decades in Australian natural resource management of what has become known as the 'regional delivery model'. During this development, government has decentralized progressively greater powers to so-called community-based systems of environmental governance. Nevertheless, key decisions regarding the course of this development remain centralized, rather than assigned consistently with an unbiased reading of the principle of subsidiarity. The so-called partnerships between governmental and community-based levels emerging from this decentralization remain largely characterised by the hierarchical purchaser-provider relationships of New Public Management, and much less by the vision of collaborative-partnerships-between-equals that originally mobilised local communities to 'sign up' to a government-sponsored model of community-based conservation.

On the surface, this outcome appears to have stemmed from the fiscal dominance of governments who 'pay the piper' and which have been unable to resist 'calling the tune'. On further reflection, however, it can be seen to have followed more fundamentally from the New Public Management's cognitive hegemony not only over governments' 'ear for a tune' but also over what community-based groups expect from 'partnerships'. Nevertheless, community-based groups are coming to expect more than this as their capacity builds through experience, and as they come increasingly to counter-balance governmental powers by working together on common issues. Meanwhile, governments are learning from experience that decentralization to entities with community representation does not automatically generate community ownership, and that such entities will be better equipped to deliver on their side of purchaser-provider arrangements when they are respected as real partners and allowed autonomy to organize in multiple levels of nested enterprises. There are reasonable grounds, therefore, to be cautiously optimistic that Australia's regional delivery model will evolve in the direction of subsidiarity. With the devil in the detail, however, much research remains lies ahead in elaborating the seven foregoing lessons to facilitate their translation to specific contexts.

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