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Economics of Incorporating Public Participation in Efforts to Redress Degradation of Agricultural Land[†]

Graham R. Marshall*

1. Introduction

In Australia over the last 15 years or so, there has been a pronounced shift toward incorporating public participation into strategies for addressing degradation of agricultural land. The stated aim has been to empower local communities to more self-reliantly deal with this costly and worsening problem. The integrated catchment management (ICM) programs of the states have perhaps been at the forefront of this trend.

This shift has been part of an international and cross-sectoral trend towards increased citizen participation in public decision making (Edwards, 1998; Fillion, 1998). Like elsewhere, moreover, the Australian experiments have rarely achieved their objective of local empowerment (Vanclay, 1997a).

This lack of success has partly been attributed to lack of understanding of the social processes integral to developing the self-reliance of a local group (AACM and Centre for Water Policy Research, 1995). In turn, this misunderstanding may be attributed to the available theory inadequately accounting for the difficulties of obtaining the voluntary cooperation needed for local self-reliance. Theoretical justifications of public participation programs have tended to be based on an over-optimistic view of human nature (Midgley, Hall, Hardiman, *et al.*, 1986).

It would therefore appear that economics, with its hard-nosed assumption of individuals acting self-interestedly, could contribute to a more realistic theoretical understanding of the potential for public participation to enhance local self-reliance. However, there has been little progress in this direction because mainstream economics has been *too* pessimistic regarding the capacity of individuals to voluntarily cooperate with one another. Local groups often achieve higher levels of voluntary cooperation than predicted by mainstream economics (Ostrom, 1990).

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* School of Economic Studies, University of New England, Armidale 2351, NSW, Australia. E-mail: gmarshall@metz.une.edu.au The research is funded by an Australian Postgraduate Award (Industry). The industry sponsor is the NSW Department of Land and Water Conservation. The views expressed herein do not necessarily reflect those of the sponsors.

Outside the mainstream, however, economists and other social scientists have made considerable progress in providing a self-interest-based explanation of real-world instances of voluntary cooperation and local self-reliance. These developments have largely arisen within the loose confines of the 'new institutional economics'. This offspring of neoclassical economics originated with Ronald Coase's (1937) seminal article 'The nature of the firm' and has most notably been developed by Oliver Williamson (e.g. 1985) and Douglass North (e.g. 1990). The purpose of this paper is to consider how this theoretical progress enhances our current understanding of how public participation contributes to local self-reliance.

The paper proceeds as follows. Section two provides an historical perspective on the shift toward incorporating public participation within strategies for preventing or ameliorating agricultural land degradation. In section three, the current theory and practice of public participation are reviewed and contrasted, particularly in the context of attempts to redress agricultural land degradation. Mainstream economic theory of voluntary cooperation, or self-reliant collective action, is reviewed in section four. This is germane because land conservation programs typically provides important public goods (e.g. less stream sedimentation) in addition to generating private benefits. Collective action (CA) to provide public goods is challenging due to their non-excludability and non-rivalry. Mueller (1989 p. 11) characterised the resulting provision problem in terms of non-rivalry being "the carrot, making cooperative-collective decisions beneficial to all" and non-excludability being "the apple tempting individuals into independent noncooperative behavior". A CA problem thus arises because "mutually beneficial cooperation is threatened by individual strategic behavior" (Lichbach, 1996 p. 32).

New institutionalist developments of that theory are also reviewed in section four. Based on these developments, a self-interest-based explanation of the relationship between public participation and capacity for self-reliant CA is presented in section five. Various considerations with respect to the benefit-cost comparison for public participation programs are discussed in section six. Finally, a number of opportunities and challenges for economists indicated by the foregoing discussion are discussed in section seven.

As indicated above, this paper was motivated by recent Australian experiences with using public participation to help redress agricultural land degradation. Nevertheless the findings at this stage apply to public participation (PP) initiatives more generally.

2. An Historical Perspective

The roots of the Australian response to agricultural land degradation are historically linked with those in the United States, the United Kingdom and some other Western nations (McDonald and Hundloe, 1993). A particularly strong influence lay in the Progressive Conservation Movement which emerged in the United States in the 1890s and continued until the 1920s. Their approach was in turn influenced by the 'progressive' ideas of Auguste Comte (e.g. 1848) who argued that societies could avoid much of the untidiness of democratic politics, including its tendency to defend the status quo, if government were organised according to modern principles. Thus he argued that progress would be fostered more successfully if scientifically-trained professionals advised parliaments on how best to solve problems and if parliaments, after setting broad goals on the basis of this advice, delegated to these professionals the responsibility for designing and implementing policies to realise these goals. Similarly, Progressive Conservationists stressed the role of science in pushing back the natural

limits to economic growth and the central role of professionals in devising and implementing environmental conservation strategies (Batie, 1989).

Despite a wave of public concern in Western nations in the late 1960s and early 1970s regarding the stresses on the environment due to economic growth (Chisholm, 1992), environmental management was generally still viewed as a technical problem requiring technical solutions (Woodhill, 1997). Moreover, Garrett Hardin's (1968 p. 1245) popularisation of the "tragedy of the commons" at that time served to vindicate, by implying that solutions to environmental problems involving voluntary collective action were doomed to fail, the progressive (also referred to as 'top-down' or 'technocratic') approach governments had assumed for these problems (Syme, 1995).

By the early 1980s, however, the public widely perceived that the top-down approach had failed to prevent an environmental crisis (Batie, 1989). Trust that administrators and experts alone could solve environmental problems dissipated as a result. For example, Syme (1993 p. 3) noted in relation to Australian water policy that:

The days of the DAD (Decide, Announce, Defend) style of planning have gone. The public is demanding more input. In fact the argument that no public consultation at all will result in greater conflict may be the only general rule for public interaction in water resources management.

At the same time, environmental degradation was increasingly understood to be a social rather than a technical problem. The idea that social problems would be best handled by actively involving the relevant people in environmental management took hold. Perhaps most notably, this transition was endorsed in Principle 10 of the United Nations Declaration on Environment and Development, 1992 (Agenda 21) as follows: "Environmental issues are best handled with the participation of all concerned citizens, at the relevant level ..." (quoted in Grubb, Koch, Munson, *et al.*, 1993 p.88).

Western governments also began to realise they were never likely to have the resources to deal with more than a small proportion of land degradation problems. They responded with programs of deregulation and privatisation and by seeking to achieve their goals more by facilitating self-regulation and self-help than by direct intervention. Governments in Australia increasingly attempted to use PP as a way of enabling rural communities to deal with their land degradation problems more self-reliantly (Martin and Woodhill, 1995). Examples have been ICM programs in the various states and the National Landcare Program (subsequently renamed the Decade of Landcare program). This strategy is illustrated by the Commonwealth Department of Primary Industries and Energy stating that it was "trying to encourage a process of self-help ... some day the local community has to pick up all this" (House of Representatives Standing Committee on Environment, 1989 p. 72).

The shift in Australia toward PP in land conservation programs has been part of what Edwards (1998 p. 63) has referred to as "a remarkable resurgence or direct action in community development in both the developed and developing world". Along with this international trend toward integration of bottom-up with top-down decision-making processes has emerged strong

cross-disciplinary interest in the concept of governance. Where government generally refers to the formal institutions and structures of the state, the idea of governance is less restrictive and recognises the various ways that governmental and non-governmental organisations can work together. Further, it recognises that political power can be distributed externally to the state as well as within it (Goodwin, 1998). The term governance has thus been taken to mark a transition to "a broad concern with a wide range of governance mechanisms with no presumption that these are anchored primarily in the sovereign state" (Jessop, 1995 p. 310-311).

3 Current Theory and Practice of Public Participation

3.1 Current theory

It is useful at this point to briefly review current (non-economic) theory regarding how PP benefits governance. As observed earlier, a goal of fostering self-help by citizen groups is central to this theory. In this view, capacity for self-help emerges from PP facilitating 'community empowerment'. In turn, this empowerment is commonly held to arise through PP fostering greater use of local knowledge, greater opportunities for this knowledge to be enhanced through learning-by-doing, and through establishing 'community ownership' of the opportunities or problems facing a group and of the strategies devised for addressing them (Pretty and Shah, 1997).

The contribution in respect of local knowledge has been held to arise from local communities typically being well-informed about local environmental, technical, economic and social conditions, and therefore about the problems or constraints that characterise their micro-society and the 'cultural patrimony' on which they can draw to meet new challenges. Accordingly local knowledge is often valuable for devising rules, decision procedures and monitoring and sanctioning mechanisms that take equity as well as efficiency considerations into account, and therefore are likely to gain broad support from local citizens or resource users (Baland and Platteau, 1996). Longer-term benefits can also follow from PP providing opportunities for local knowledge to influence the types of questions asked and thus the kinds of research pursued (Norgaard, 1994). This is not to say, however, that the state or other external agents do not have a role in helping individuals to see patterns in their separate observations and to articulate these patterns as causal sequences.

The contribution of PP to local learning-by-doing can come about through the opportunities it provides for citizen groups to develop skills in organising, accessing information, analysing problems, developing solutions, consulting, negotiating, resolving conflicts, monitoring and sanctioning, and so on (World Bank, 1996). On a wider scale, prospects for learning can be enhanced to the extent that participation decentralises problem-solving and thereby allows many more institutional and technical 'experiments' to be carried out. To the extent that different participating groups face similar problems, they can learn from one another by sharing experiences. Accordingly, Young, Gunningham, Elix *et al.* (1996 p. 95) have observed that:

... it is strongly arguable that this diversity [of attempts by different groups to solve similar problems] provides considerable advantages, notwithstanding the fact that some initiatives will

fail ... if the same problem is approached by many parties from many angles, it is far more likely that the most efficient solution will be reached by some, which will ultimately be of benefit to all.

The ‘community ownership’ contribution of PP is often discussed but rarely precisely specified. It appears to be concerned with redressing what Baland and Platteau (1996 p. 347) have characterised as “the deep-rooted ‘culture of distrust’ that permeates relationships between the State and local resource users ...”. Top-down governance has arguably contributed to this distrust by tending to centralise policy processes, thus making active participation in them more costly and more exclusive. To the extent that people believe more in knowledge they have discovered for themselves than in knowledge presented by others (Johnson and Johnson, 1991), trust in policy processes can be expected to have declined as a result. Accordingly, the World Bank (1996) has argued that an important role of PP is, by making participation in policy processes more inclusive and thus citizens more generally aware of what policy options mean for them, to enable citizen groups to achieve a level of well-informed consensus among members sufficient for them to credibly commit to implementing policies they have advocated or supported.

Moreover, organising to cover the costs of participation is typically easier for small groups sharing narrow interests than for larger groups with interests more broadly shared (Olson, 1982). Thus groups with broad interests are more likely to be excluded from participating in top-down policy processes than are groups with narrow interests¹. The resulting tendency for narrow interests to be disproportionately represented in top-down policy processes often offends widely-held norms of procedural justice or ‘fairness’ and thus lessens the legitimacy of, or the public’s trust in, decisions emerging from these processes. It has been argued that PP programs lessen this distrust by making policy processes more inclusive and thus ‘fairer’ (e.g. Syme, 1993; Group, 1996; Young, *et al.*, 1996). The consequently greater legitimacy of policy decisions may also help to foster sufficient consensus among members for citizen groups to demonstrate credible commitment to policies they have advocated or supported.

One other way that PP enhances consensus among members of citizen groups, and thus community ownership, has been suggested. It is by providing members with opportunities to communicate inclusively and intensively enough that they are able to ‘surface’ and challenge ill-founded beliefs that make conflict among members greater than it would otherwise be (Priscoli and Homenuck, 1986; Meppem and Gill, 1998).

3.2 Current practice

Despite the theory, however, many so-called ‘participatory’ governance mechanisms have a very limited, or even negative, potential to empower citizen groups including local communities. Sherry Arnstein (1969) was one of the earliest to highlight this with her oft-cited

‘ladder of citizen participation’. An adaptation of this ladder by Pretty and Shah (1997), which is more suited to the land and water conservation focus of this paper, is shown in Table 1.

Table 1: Types of public participation

Type of participation	Characteristics of type
1. Manipulative participation	Participation is simply a pretence, with ‘people’s’ representatives on official boards who are unelected and have no power.
2. Passive participation	People participate by being told what has been decided or has already happened. People’s responses are not listened to.
3. Participation by consultation	People participate by being consulted or answering questions. External agents define problems and information-gathering processes, and so control analysis. External agents are under no obligation to respond to people’s views.
4. Participation for material incentives	People participate by contributing resources, for example land, in return for material incentives. People have no reason to continue participating once the incentives cease.
5. Functional participation	Participation seen by external agencies as a way to achieve their goals. People may participate by forming groups to meet externally determined objectives. Such involvement may be interactive and involve shared decision making, but tends to arise only after major decisions already have been made externally.
6. Interactive participation	People participate in joint analysis, development of action plans and formation or strengthening of local institutions. Participation is seen as a right, not just the means to achieve project goals. It is expected that taking control over local decisions will lead local groups to assume ‘ownership’ for maintaining the structures or practices they have agreed to.
7. Self-mobilisation	People participate by taking initiatives to change systems independently of external institutions. They may utilise resources and technical advice from external agencies, but retain control over how resources are used.

¹ For instance, Powell (1993) noted how the history of environmental management in the Murray-Darling Basin was largely one of pressure groups successfully lobbying governments for legislation that was beneficial to themselves but detrimental to the nation at large.

Pretty and Shah (1997) have observed that participation types 1-4 in Table 1 might be more aptly viewed as non-participation because they do not involve any substantive devolution of governance to citizens. Similarly, Midgley, Hall, Narine *et al.* (1986) noted a distinction between authentic participation and pseudo-participation, where public involvement in the latter is limited to implementation or ratification of decisions already taken by external bodies. Meppem and Gill (1998) have argued that processes where participation involves no more than consultation tend to empower the external agents more than the local community: empowerment of the latter depends on the knowledge they have volunteered being filtered back to them. Furthermore, consultation processes typically provide few opportunities to a community for revealing and challenging beliefs.

Lingering professional prejudices against local knowledge also tend to limit the extent to which participation by consultation contributes toward community empowerment. Acculturation within top-down governance has made it difficult for many administrators and so-called experts to cease viewing local knowledge “in a dismissive and adversarial light, as being non-scientific, defective, irrational and even superstitious” (Blaikie, Brown, Stocking, *et al.*, 1997 p. 220). Even without this prejudice, the heavily hierarchical decision-making structures inherited from top-down governance can mean that gains at the ‘coal face’ in accessing local knowledge are inefficiently translated into better decisions. Norgaard (1994 p. 162) has characterised the problem as follows:

At the base of the bureaucracy, experts working on particular problems at the local level understand problems in great detail ... At each [higher] level, administrators are aware of less and less, selected according to what those below thought they should and could communicate without having it end up in the wastebasket at the next level ...

A variety of other reasons have been offered for why implementation of PP by politicians and administrators often has not lived up to its theoretical potential. One is the allegation that governments often use a rhetoric of democracy and community empowerment to mask a real agenda of ‘public services on the cheap’ (e.g. Shortall, 1994; Craig, 1998). Another is that politicians and government administrators tend to be afraid that community empowerment would result in their own disempowerment² (Sharp, 1992). Pertinent here is Syme’s (1993) suggestion that the reason for the common practice in Australian rural environmental governance of politicians retaining a final say in selecting community representatives is to protect their power. A further reason given is that administrators are often biased against recognising citizens as competent to assume real decision-making responsibilities. PP may therefore be implemented only to the extent that it provides a vehicle for diverting blame for governance failure from politicians and administrators (Martin, Tarr and Lockie, 1992).

² This ignores the fact that the power of a leader with respect to other leaders is enhanced to the extent that the productivity of his or her followers is enhanced through empowering them. Furthermore, as Baland and Platteau (1996 p. 347) have observed: “To argue for a (user) group- or community-centred approach is therefore not tantamount to asking for a drastic retrenchment of state responsibilities in resource management. The basic concern is actually with reshaping state interventions ...”.

Aside from problems due to the perceived self-interest of politicians and administrators, failure to deliver on the theoretical potential of community empowerment has been attributed to ignorance. For instance, Filion (1998) has observed how the current “wave of interest” in community development programs has a “utopian flavour”. This is because it has not considered carefully how the aims of these programs are to be achieved within the present economic and political context. In the context of Australian ICM programs, it has been observed that “there is a profound lack of understanding, even a misunderstanding, about community empowerment by both government and communities” (AACM and Centre for Water Policy Research, 1995 p. 32). Hence politicians and officials have often been unable to resist forcing the pace of ICM PP processes. They have overlooked past lessons that patience with participatory processes is required if they are to yield results (Hollick, 1992). Sandy Booth (in Booth and Hooper, 1996 p. 20) used the following analogy to illustrate the need for such patience in implementing ICM:

...Yitshak Rabin ... had the power to tackle the [Palestinian] issue with brute force ... But when it came to the crunch - when he wanted to bring about change he moved away from ‘the stick’ approach and decided on ‘process’. He couldn’t resolve the complex issues by getting the people directly from one position to the end point needed. He knew he had to go via a series of steps ...

Ignorance, as well as opportunism, can also lead officials “swamp the participants with information and blind them with science” and thereby negate any potential PP may have had for community empowerment through learning-by-doing (Painter, 1992 p. 34). The consequence of this for ICM and landcare initiatives in Australia has been summarised by Price (1996 p. 33) as follows:

... it is probably fair to say that the ICM process has largely been driven by government institutions ... [and consequently] programs such as ICM and Landcare often have the opposite effect to that which they aspire to achieve. Many of these programs ... can reinforce notions that natural resource management issues are taken care of by government programs ...

Lack of understanding of factors inhibiting effective participation can mean that important sections of the public continue to be under-represented in governance despite introduction of participatory processes. Although public representation on ICM committees has generally been achieved, for instance, giving the general public an effective voice through that representation has proved to be another matter (Martin, *et al.*, 1992; AACM and Centre for Water Policy Research, 1995; Vanclay, 1997b). In one survey it was found that only one-third of ICM committees believed their strategies for involving their local communities in their deliberations were adequate, so that committees were often regarded as arms of government rather than as vehicles for local publics to gain greater influence over their own affairs (Margerum, 1996). Other reasons for continuing exclusivity of participation, at least in the context of ICM and landcare initiatives, is that wealthier or retired farmers have more opportunity to participate (Martin and Woodhill, 1995), and ‘unspoken hierarchies’ in rural communities serve to self-screen the types of people who volunteer, or are nominated, to participate (Carr, 1992). For reasons of this kind, Wilkinson and Barr (1993) concluded from a case study that early

attempts in Australian ICM programs to gain community ownership of local catchment problems and their solutions had been naive.

Indeed there is ample historical evidence that achieving broad participation in programs of this nature is difficult (e.g. Kitching, 1982). For instance, British and US colonial attempts at community development and stimulating local initiative in the 1950s and 1960s generally failed and gave way to comprehensive planning (Shortall and Shucksmith, 1998).

In sum, the practice of PP, whether in Australian ICM or landcare initiatives or in other contexts elsewhere, has rarely lived up to its theorised potential. In the context of Australian ICM initiatives, for instance, Vanclay (1997b) observed that efforts at participation had often failed to produce tangible outcomes other than satisfying legislative and political requirements. Similarly, Margerum (1996 p. 8) found that:

... many people are now asking - including the [ICM] committees themselves - what they have accomplished for the investment of time and resources ... Furthermore, when I asked the state agency and local government stakeholders what changes or adjustments their organisation had made in response to the committee, few could cite any changes.

3.3 Advancing the practice

Reflecting on problems like these, Shortall (1994 p. 250) concluded that what is needed is “consideration of means of advancing forward from previous problematic experience rather than pushing blindly ahead and trading on the positive connotations of the idea of participation”. The World Bank (1996) has made a step forward in this respect by recognising that governments and other external agents need to start thinking about participation more in dynamic, or process-oriented, terms than in the static, or technique oriented, terms that have largely dominated to date.

The World Bank referred to the dynamic perspective as the ‘participatory stance’. Implicit in the participatory stance is the subsidiarity principle which requires that functions of governance be devolved to the lowest level at which they can be exercised satisfactorily (Young, *et al.*, 1996). Thus those who seek to deprive a lower level of a function need to prove that the lower level lacks the capacity to exercise this function satisfactorily and that a higher level can do significantly better (Schumacher, 1973). In addition, the participatory stance implies that governments or other external agencies have a responsibility to ensure that PP programs empower participants to exercise increasingly challenging functions of governance.

This perspective highlights the importance for community empowerment of realistically matching the initial level of PP to the initial capacity of the local group to succeed at that level. As Sharp (1992 p. 51) has argued, “democratic processes for sustainable development must start from where the people are ...”. In addition, however, this perspective emphasises the need to move to more demanding types of participation as the self-governing capacity of the group strengthens as a consequence of its participation. According to the World Bank (1996), this process of adapting the participation type to the evolving self-governing capacity of a local group requires that the group itself participates in this matching process.

4. Developments in the Economic Theory of Collective Action

4.1 Early insights

However, there appears to be little in the way of theory to suggest how the practice of PP can be systematically advanced. From an economist’s perspective, a worrying aspect of the theories used until now to justify PP has been their susceptibility to the fallacy of composition that Mancur Olson (1965) observed is commonly committed when assessing the likelihood of individuals acting collectively to address shared opportunities or problems. He characterised this fallacy as follows:

... if the members of some group have a common interest or objective, and if they would all be better off if that objective were achieved, it has been thought to follow logically that the individuals in that group would, if they were rational and self-interested, act to achieve that objective. (p. 2)

For instance, Midgley *et al.* (1986) have observed that many advocates of PP share a belief that instinctive human capacities for communalism and participation will re-emerge when the ‘corrupting’ influence of the state is removed. At least as far as most economists are concerned, beliefs of this kind are unrealistic. This is because they disregard the fact that individuals are self-interested³ and act in the communal interest only in so far as it coincides with their self-interest. From this point of view, it is not surprising that PP programs based on a belief that self-interest is synonymous with the public interest frequently fail to realise their community empowerment objective.

Olson identified the reason for the fallacy of composition as the “externality inherent in all collective good situations, in that each individual’s provision of any amount of a collective good would confer some benefit to others” (foreword to Sandler, 1992 p. xiii). The resulting temptation for individuals to ‘free-ride’ on the provision efforts of others increases with group size, *ceteris paribus*. Olson (1965 p. 48) characterised this problem as follows:

... the larger the group, the smaller the fraction of the total group benefit any person acting in the group interest receives, and the less adequate the reward for any group oriented action, and the farther the group falls short of getting an optimal supply of the collective good, even if it should get some

Except possibly for the case of small groups, the implication of Olson’s neoclassical economic reasoning is that citizens are unlikely to provide themselves sufficiently with collective goods

³ Self-interest does not preclude altruism or other forms of ‘other-regardingness’. However, the assumption of self-interest recognises that other-regardingness is normally not strong enough to fully reconcile an individual’s interests with the interests of others. Axelrod (1984 p. 7) has illustrated this point as follows: “If a sister is concerned for the welfare of her brother, the sister’s self-interest can be thought of as including (among many other things) this concern for the welfare of her brother. But this does not necessarily eliminate all potential conflict between sister and brother”.

unless government intervenes on their behalf⁴. Put another way, individuals needing to cooperate with more than a few others to provide a collective good generally face a ‘social dilemma’: pursuing individual self-interest leads to a sub-optimal outcome for all players. As example of a social dilemma relevant to the focus of this paper is the free-rider problem associated with protecting a commonly-owned resource (e.g. a lake which supplies irrigation water) from external costs imposed (e.g. due to nutrient loading) by degradation of private land.

Olson’s (1965) pessimistic conclusion was consistent with Hardin’s (1968) ‘tragedy of the commons’ metaphor. It was also in accord with the lessons being drawn around that time from non-cooperative game theory - particularly from its famous model of the social dilemma called the Prisoner’s Dilemma (PD) game. The pay-offs of this game are such that, if only one play of the game is possible, it is self-interestedly rational for each of the two players to defect on the other even though both would be better off if they both cooperated. In the basic form of the PD game, the two players cannot communicate with each other apart from each simultaneously moving once in the game. Thus they cannot escape from the fact that they are in an interdependent situation yet must act independently (Ostrom, 1990).

The two economic models of cooperation presented by Mancur Olson and non-cooperative game theorists thus led to profound and persistent pessimism in mainstream economics regarding the prospects for citizens to self-reliantly address problems requiring CA. Hence it is not surprising that mainstream economists have largely persisted with a presumption that provision activities relating to CA inevitably require government intervention and, conversely, that groups of citizens are generally incapable of successfully intervening on their own behalf. With self-reliance thus generally ruled out of contention, possible strategies for promoting self-reliance, including PP, also remained widely disregarded. To those mainstream economists nevertheless curious about the growing enthusiasm for PP, terms like ‘community ownership’ and ‘community empowerment’ commonly used to describe how it contributes to self-reliant CA only served to confirm their suspicions regarding the prevalence of the aforementioned fallacy of composition. The lack of interest of mainstream economics in a more directly ‘democratic’ style of governance might also be explained by the “irritation of many economists with the ‘ineffectiveness’ or the ‘muddle’ of decision-making in a democracy” (Frey, 1992 p. 211).

Nevertheless there has been growing concern that mainstream economic theory provides an excessively pessimistic prognosis for self-reliant CA and has consequently, due to its effect on policy advice, led to unnecessary government intervention. This concern has been based on mounting evidence from common-property settings, computer-based game-theoretic simulations and ‘laboratory experiments’ that large groups can become capable of voluntary

⁴ However, note the distinction between provision and production. Provision relates to *resourcing* the production of a good, including the preceding coordination and planning activities. Government provision of a good therefore does not require it to actually produce the good (Musgrave and Musgrave, 1984).

CA. A particular concern has been that the mainstream theory fails to account for learning-by-doing and other social dynamics that field studies have indicated can allow the evolution of large-group cooperation through “an incremental, self-transforming process” (Ostrom, 1990 p. 190).

In the absence of a credible self-interest-based theory of voluntary CA, those turning to PP as a way of facilitating local self-reliance have depended for guidance on knowledge derived inductively from empirical experience. However, the problem with inductive knowledge is that it cannot justify a prediction that what succeeded in one setting will also succeed in other settings. What is needed for this purpose is theory grounded inductively in experience. However, concerted efforts to develop theories of this kind commenced only quite recently. An important reason for this seems to have been a ‘technocentric’ cultural bias which has led policy makers and related disciplines, like economics, to undervalue knowledge regarding the social processes of civil society. For instance, Martin (1992 p.194) claimed that implicit in the Draft Decade of Landcare document was an attitude that:

the social processes and understandings needed for the implementation of TCM [Total Catchment Management⁵] and Landcare are either obvious or will just appear with time and do not deserve the intellectual and research effort of the sort devoted to the natural sciences.

Nevertheless this bias has begun to weaken. One reason for this has been the considerable progress over the last 15 years or so in the cross-disciplinary research program that emerged to reconcile the economic theory of CA with evidence of successful cooperation within large-group social dilemmas. The ‘negative’ aim of this program has been to overcome uncritical pessimism regarding self-reliant CA by developing a self-interest-based theory of CA that is inductively grounded in empirical inquiry. The ‘positive’ aim has been to identify the preconditions of successful self-reliant CA so that policy makers can try to design them into emerging institutions (Sandler, 1992). A brief review of progress to date in this research program follows.

4.2 Reconciling theory with empirical evidence

A key insight of this program has been that real-life CA, unlike the PD model, often does not restrict individuals caught in a social dilemma to a single simultaneous interaction. Even if the individuals cannot make enforceable commitments to cooperate with one another, opportunities within a social dilemma for ‘iterated’ moves, and thus for pursuit of contingent strategies, provide potential for this constraint to be overcome. Robert Axelrod (1984 p. 12) thus observed:

What makes it possible for cooperation to emerge is the fact that the players might meet again. This possibility means that the choice made today not only determines the outcome of this move, but can also influence the later choices of the players. The future can therefore cast a shadow back upon the present and thereby affect the current strategic situation.

⁵ Total Catchment Management is the name given by the New South Wales Government to its integrated catchment management program.

In particular, Axelrod demonstrated using computer simulations of populations playing indefinitely-repeated two-person PD games that, at least when the 'shadow of the future' is strong enough, widespread mutual cooperation can evolve even if only a small cluster of individuals are initially prepared to follow contingent strategies involving reciprocity⁶. Nevertheless, as much of an advance toward understanding self-interested cooperation as this was, most of the real-life social dilemmas significant for public policy involve multi-person interactions which cannot be modelled reasonably as a series of two-person interactions. In two-person games with complete information, each person can infer with certainty the moves of the other player because they know the outcomes and what their own moves have been. However, in games of three or more players this is not the case. Unless resources are allocated to monitor all players, it cannot be known whether a sub-optimal outcome is the result of many individuals free-riding a little or one player free-riding a lot (Ostrom, Gardner and Walker, 1994). Furthermore, any increased cooperation that emerges from one player's willingness to monitor and sanction other players constitutes a collective good shared among all players. Hence establishing the preconditions for practising reciprocity represents a second-order social dilemma. As Elster (1989 pp. 40-41) remarked with respect to the negative (i.e. 'eye for an eye') aspect of reciprocity: "Punishment almost invariably is costly to the punisher, while the benefits of punishment are diffusely distributed over the members".

Non-cooperative game theorists trying to explain empirical evidence that individuals in multi-person social dilemmas do sometimes practise reciprocity have tended to hypothesise that these individuals follow the variant of reciprocity known as the 'grim trigger' strategy. Someone following this strategy starts by cooperating but ceases doing so forever upon detecting any free-riding at all by others (Ostrom, 1998). However, given the considerable risks in real settings of honest mistakes, both in attempting to cooperate and in monitoring others' cooperation, the grim trigger strategy provides a fragile basis for lasting self-reliant collective action. Furthermore, Ostrom *et al.* (1994) have observed that subjects in iterated-game 'laboratory experiments' reject the grim trigger strategy because it deprives everyone of the reward from mutual cooperation.

Faced with this impasse in providing a theory of large-group self-reliant CA, researchers increasingly have resorted to studying people subjected to social dilemmas devised in 'laboratory' settings. Accumulated evidence from these experiments suggests that the type of rationality exhibited by individuals caught in social dilemmas is more 'bounded' than that assumed in neoclassical economics or in standard non-cooperative game theory. Rather than calculating all future contingencies and deciding once and for all on a single optimal strategy, for instance, Elinor Ostrom (1998 p. 9) has concluded from laboratory-experiment results that individuals in social dilemmas adapt heuristics (i.e. 'rules of thumb') as they learn about the

⁶ Reciprocity involves cooperating unless the other player defects first, and in that case defecting only in proportion to the other's level of defection. The best-known reciprocity strategy is 'Tit-for-Tat'. An individual following this strategy always cooperates in the first move and then does whatever the other player did in the previous move.

decision situation, including about the other people caught in the dilemma. Hence instead of irrevocably ceasing to cooperate as soon as defection by others is detected, Ostrom *et al.* (1994 p. 199-200) concluded that many individuals use a 'measured-reaction' heuristic whereby:

... a player reacts mildly (if at all) to a small deviation from an agreement. Defections trigger mild reactions instead of harsh punishments. If defections continue over time, the measured response slowly moves from the point of agreement toward the Nash equilibrium⁷.

An agreement regarding what constitutes cooperation in a particular setting provides a reference point against which individuals assess the need to react. For an agreement to be durable in the absence of formal sanctioning, most individuals caught in a dilemma must trust that sufficient others will practise reciprocity, and therefore begin by cooperating, to make reciprocity more rewarding to themselves than initial defection. The degree of trust one person has for another "is just the expected probability of the dependency working out well" (Hardin, 1993 p. 516).

Ostrom (1998) argued that people decide how much to trust by using heuristics to assess others' reputations. These heuristics can relate to diverse attributes including promise-keeping in other arenas, membership of respected organisations, association with respected citizens, conformance to relevant norms (e.g. regarding neighbourliness or etiquette), and body language or speech patterns. If the person to be trusted is a stranger, people may use 'labels' and 'stereotypes' as heuristics to infer that the stranger will behave similarly to others sharing the same observable characteristics (Axelrod, 1984).

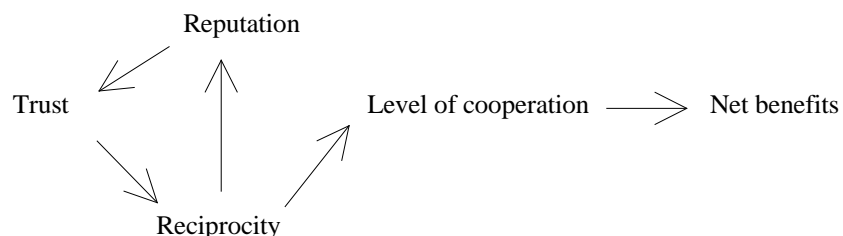
Further, Ostrom (1998) proposed that a boundedly-rational individual enters a particular social dilemma with an initial capacity to trust which is based on upbringing, training and on earlier experiences. Such an individual can also be expected to arrive in that social dilemma following a 'reputational norm' consistent with his or her initial trustingness (Hoffman, McCabe and Smith, 1998). The initial capacity to trust is revised through an instinctive form of Bayesian learning as experience in the new dilemma provides ongoing opportunities to reassess others' reputations (Hardin, 1993). Moreover, as individuals revise their trustingness upward or downward, the prevalence of reciprocity, and thus the degree of cooperation, can be expected to change in the same direction. In turn, reputational norms are likely to be adapted to the extent that cooperation levels in the new setting become higher or lower than in their prior general experience. Accordingly individuals can be expected to 'invest' in gaining a better reputation for practising reciprocity as cooperation levels, and therefore payoffs from cooperating, rise and to take less care in maintaining such a reputation as cooperation levels fall.

Thus Ostrom (1998 p. 13) argued that "levels of trust, reciprocity and reputations for being trustworthy are positively reinforcing" and illustrated the rudiments of a dynamic model of

⁷ A combination of various players' strategies is in Nash equilibrium if no player has an incentive to deviate from his or her strategy given that no other player(s) deviate (Sexton, 1994). In other words, each player's strategy is self-interest-maximising given the strategies played by others.

collective action based on these core inter-relationships using a diagram on which Figure 1 is based.

Figure 1: Rudiments of a dynamic theory of self-reliant collective action



Whether the core triad of inter-relationships results in increasing or diminishing levels of voluntary cooperation depends critically on the structural setting of the social dilemma. This informal theory of CA thus explains how self-interested individuals can achieve a high level of mutual cooperation in a large-group social dilemma. The key to success in this endeavour is to create and maintain a structural setting which provides a ‘shadow of the future’ that is strong enough that individuals want to expand their ability to practise reciprocity by becoming both more trustworthy and more trusting.

Stocks of trust and reciprocity have been referred to as part of a society’s ‘social capital’. According to Coleman (1990), social capital inheres in the structure of relations between persons and among persons. The term ‘capital’ recognises that trust and reciprocity are assets which enhance the productivity of self-reliance as a strategy for solving social dilemmas. Nevertheless social capital differs from most other types of capital since it is augmented, rather than depreciated, by use. Gambetta (1993) observed, for instance, how trust is strengthened the more it is used.

Ostrom’s (1998) informal theory, along with the concept of social capital, adds significantly to the explanation of community empowerment presented earlier. These ideas suggest an additional range of structural variables that policy may be able to influence in its efforts to foster greater citizen self-reliance. Of particular interest, given the focus of this paper, is the opportunity these ideas afford to gain a richer understanding of the role of PP in this endeavour.

5. **Towards an Economic Explanation of the Relationship between Public Participation and Self-Reliant Collective Action**

A useful place to start is to recognise that PP can be a way of harnessing more effectively the positively-reinforcing relationships responsible for creating (or destroying) the social capital that the aforementioned informal theory suggests is essential for self-reliant CA. Particularly suggestive in this respect has been the finding from laboratory experiments that communication, especially when face-to-face, between those caught in a social dilemma can

increase considerably their level of mutual cooperation. For instance, Sally (1995) found from a meta-analysis of more than 100 experiments that opportunities for face-to-face communication in single-play social dilemma experiments raised the cooperation rate on average by 45 percentage points. In experiments where subjects were allowed to talk face-to-face before each round of plays in repeated-play social dilemmas, the cooperation rate was on average 40 percentage points higher than without that opportunity. Ostrom *et al.* (1994) found face-to-face communication to have similar effects. These experimental results challenged the conclusion from mainstream CA theory that communication and resulting agreements are impotent in solving social dilemmas unless they are backed by enforceable sanctions.

Ostrom (1998) proposed a number of reasons, based on her informal CA theory, to explain this experimental evidence. Firstly, communication is a prerequisite for individuals mutually agreeing on how to resolve their social dilemma. As noted previously, agreements provide a reference point around which a large group can practise reciprocity through measured reactions. Secondly, repeated communication provides scope to revise an agreement if measured reactions cannot prevent it from unravelling. Thirdly, repeated communication provides opportunities to praise cooperators and chastise defectors, even if they are anonymous, thereby increasing the external incentive for individuals to cooperate. To these reasons it might be added that communication also provides an opportunity for individuals to share information regarding the nature of their social dilemma. It is not unusual in real settings that some individuals become aware considerably sooner than others that they are caught in a social dilemma.

Explanations were offered also for why cooperation levels are considerably higher when communication is face-to-face rather than through a less immediate medium. These explanations were implied in an earlier observation from Ostrom *et al.* (1994 p. 197):

Once individuals have made an agreement in the lab, much of the time spent communicating is devoted to establishing trust and verbally chastising unknown individuals if agreements are broken.

With regard to the effect on trust, face-to-face communication enhances individuals’ ability to assess others’ reputations as well as to establish their own reputations. For instance, Frank (1988) argued that there are physical ‘tell tale signs’ of an individual’s trustworthiness. Conversely, physical cues of this nature are also typically called upon, either consciously or instinctively, by individuals seeking to establish a trustworthy reputation. Accordingly, Frank (1988) has claimed that emotions evolved biologically to help individuals to make irrational yet credible commitments to one another, for instance to comply with an agreement which cannot be enforced. Thus face-to-face communication provides individuals appreciably greater scope to use their emotions to ‘prove’ their trustworthiness with respect to complying with a group agreement. With regard to the effect on chastising as a means of informal sanctioning, it appears that verbal rebukes are given considerably greater emotional force when delivered face-to-face (‘tongue-lashing’). Ostrom *et al.* (1994) concluded from laboratory experiments that the ability to chastise offenders (even if they are unknown) face-to-face is critical if

measured reactions are to maintain cooperation when some individuals do not follow this heuristic⁸.

Laboratory experiments have also demonstrated that face-to-face communication can promote 'group identity' and thereby make individuals sufficiently more 'other-regarding' of each other's welfare that they become more likely to cooperate with each other (Dawes, van de Kragt and Orbell, 1990). Frank (1988 p. 224) alluded to this phenomenon as follows:

To cheat a stranger and to cheat someone you have met personally amount to precisely the same thing in rational terms. Yet in emotional terms, they are clearly very different. Face-to-face discussion, even if not directly relevant to the game itself, transforms the other players from mere strangers into real people.

Hence it appears that communication can, especially in the form of repeated face-to-face meetings, considerably improve prospects for successful cooperation by a large group of self-interested individuals. This phenomenon can be explained without departing from the assumption of self-interest provided that this concept is taken to encompass aspects of other-regardingness including group identity and aversion to social disapproval (e.g. in the form of 'tongue-lashing'). Moreover, although heuristics and emotions represent a more contentious departure from the mainstream (i.e. neoclassical) notion of rational choice, these 'irrational' elements of choice are becoming more accepted in the mainstream due to their growing currency within the new institutional economics.

As noted previously, the current understanding is that PP potentially empowers local communities to assume greater responsibility for their own governance by: (i) enabling greater use of their knowledge; (ii) providing them with learn-by-doing experiences whereby they can develop relevant aspects of human capital; and (iii) enhancing 'community ownership'. The foregoing explanation of how repeated face-to-face communication contributes to self-reliant CA adds to this understanding, particularly by elaborating how community ownership arises and affects the behaviour of self-interested individuals.

Basically, PP is currently understood to foster community ownership by helping individuals to agree on what they should do collectively. As we have seen, this understanding is consistent with recent developments in the economic theory of voluntary CA to the effect that agreements provide a reference point around which cooperation may be established and sustained through reciprocity. However, while agreement might be important for the credibility of a local group's commitment to self-reliantly resolve a particular social dilemma, it is evident from the

⁸ Out of six experiments they performed where subjects subjected to a challenging dilemma could communicate repeatedly face-to-face (yet were unable to identify defectors), they found that measured reactions accounted for at least 93 per cent of reactions in five cases (where the initial agreement promised a potential group outcome of at least 90 per cent of the optimum) and 75 per cent of reactions in the remaining case (where miscalculation meant that the initial agreement promised a group outcome of only 40 per cent of the optimum). The five groups who reached 'good' initial agreements realised, on average, 78 per cent of the optimal outcome.

preceding review of CA theory that agreement alone is insufficient to guarantee success in this endeavour. For the social dilemma to be resolved, the structural setting must in other ways contribute to bridging the gap between the collective interest reflected in an agreement and the self-interest of individuals. As observed previously, to simply presume that self-interest equates with the collective interest constitutes a fallacy of composition.

Nevertheless the aforementioned developments in the CA research program indicate a possibility for PP programs to contribute more to self-reliant CA than by merely helping individuals agree on how to act collectively. That is, provided they do enhance opportunities for face-to-face communication, participatory programs may bridge the gap in social dilemmas between individual and collective interests in three ways. Firstly, by enhancing mutual trust through providing individuals with greater scope for forming and assessing reputations. Secondly, by providing more opportunities for, and increasing the emotional immediacy of, verbal approval and disapproval. Finally, by strengthening group identity and thereby making group members regard more highly each other's interests and views. In turn, the group-identity effect is likely to complement the effect on frequency and intensity of verbal approval and disapproval by leading recipients to weight that approval and disapproval more heavily.

The group-identity effect seems to be implied by suggestions that community ownership increases 'peer pressure' on individuals to conform with what has been collectively agreed (e.g. Marshall, Wall and Jones, 1996; Young, *et al.*, 1996). However, it seem reasonable to assume, following Richard Posner (1997), that the motivational effect of verbal approval and disapproval is negatively related to a society's level of income. If this is true, the motivational force of the group identity effect would be less in 'developed' societies, like Australia, than in 'less-developed' societies. Indeed, Valley *et al.* (1998) found, from laboratory experiments performed in the USA, that face-to-face communication fostered cooperation less by activating other-regardingness than by building trust.

In sum, the current understanding of how PP facilitates local self-reliance can be enriched by accounting for the scope that participation provides, through facilitating face-to-face communication, for augmenting social capital in the forms of mutual trust and group identity. This advance in understanding is important in so far as it improves the prospects for PP programs to be designed to produce these beneficial effects. It is also significant because it corrects an apparent misapprehension that community ownership lessens the gap between individual and collective interests only by making group members regard each other's welfare more highly.

6. Benefits and Costs of Public Participation Programs

6.1 Benefits

Despite the aforementioned scepticism of mainstream economics regarding attempts to 'democratise' governance, a number of economists and other social scientists have identified a potential for initiatives of this kind to confer social benefits. According to Richard Norgaard (1994), for instance, top-down governance has disempowered citizen groups by tending to

centralise governance regardless of their capacity to govern themselves. Put another way, formal institutions have been substituted for informal institutions, and the social (and human) capital supporting the latter has consequently tended to depreciate due to lack of use. With informal regulation of behaviour weakening as a result, it follows that a dynamic consequence of top-down governance has been an increasing reliance on centralised formal governance.

Coleman (1990) has explained this seemingly unintended destruction of social capital by pointing out that social capital is a public good which typically is generated as an unintended by-product of individuals pursuing some other self-interested objective⁹. In other words, social capital has largely been taken for granted. Thus Day (1998 p. 103) has observed how “it is easy, almost inadvertently, to destroy social arrangements which represent substantial past investments with enormous potential”.

At the same time as the capacity to sustain informal institutions has been depreciating, it appears the capacity of top-down governance mechanisms to adapt formal institutions has become outflanked by increasingly rapid emergence of new social and environmental problems. Norgaard (1994) has attributed this situation to economic growth pushing ecological systems further and further against their limits, thus leading to more and more unanticipated side-effects. Norton, Costanza and Bishop (1998 p. 203) have characterised the resulting social problem as follows: “Like a car that has increased speed, humans are in more danger of running off the road or over a cliff”.

Contemporary interest in shifting to more participatory forms of governance can thus be understood as relating to mounting concerns that top-down governance is becoming less and less capable of coping with the mounting rapidity with which environmental and consequent social problems are arising. Norgaard (1994 pp. 156-157) was explicit about this when he suggested that the way out of this problem is through “democratization of progress ... People collectively need to decide more locally, and when they delegate authority, it should be delegated as locally as possible”. Accordingly, the push for wider participation in governance can be viewed as signifying increased recognition that widening participation in governance can foster social dynamics which, by augmenting social and human capital, can empower citizen groups to assume progressively greater responsibility for governing themselves.

6.2 Costs

However, an assessment of the case for greater PP in governance requires that the associated costs also be considered. Indeed, concerns have been raised that these costs, in terms of both resources and time, are prohibitively high. For instance, Marsden, Oakley and Pratt (1994 p. 154) observed that “some argue that all these ‘participatory processes’ lead to over-complication, to stultifyingly slow progress and to decision-making processes which are so extended and non-directional that nothing appears to happen”. The World Bank (1996 p. 247)

remarked similarly that: “Two persistent myths exist about community-based programs: that they cost more and that they take longer”.

The World Bank (1996 p. 247) has found from experience, however, that the effect of PP programs on the cost of developing and implementing policy depends importantly on the setting. Thus it observed that PP significantly adds costs to achieving development objectives “only when community-level organizations have been so eroded that substantial time and resources have to be devoted to capacity building”. Furthermore, the cost of PP depends on how it is designed and executed. Hence Meppem and Gill (1998 p. 131) have argued that “adopting genuinely community consultative approaches to resource policy making need not be unacceptably expensive or unwieldy; ... the key is for appropriate processes ...”.

Indeed, there is accumulating evidence that well-designed participation processes can allow greater satisfaction of goals in less time and at lower cost than would otherwise be possible. For instance, Priscoli and Homenuck (1986 p. 69) found: “Our experience is that consultation for complex and difficult decisions does not lengthen the process. In fact, the reverse may be true; consultation may prevent lengthy litigation and other delays”. Similarly, the World Bank (1996 p. 247, emphasis in original) has observed that: “Evidence increasingly indicates that, *when the institutional framework is right*, participatory community-based programs actually cost less and are quicker to implement”.

Findings like these recognise that cost comparisons between participatory and top-down modes of governance are flawed unless they account for the costs of all activities required to achieve a given policy objective. Claims that PP makes governance more costly often consider solely the costs of the initial round of activities required to formulate a policy. However, this typically frequently constitutes only the first stage of an iterative process of policy formulation and implementation. For instance, Shrybman (1986) has argued that PP makes it more likely that policy formulation and implementation can proceed without needing to resolve disputes in costly administrative or judicial forums.

In any case, to the extent that the benefits claimed from PP arise dynamically, it is not appropriate to assess its efficiency by comparing only the short-run cost and benefit implications of participation programs. Any community empowerment achieved through PP in addressing one policy issue can indeed provide benefits in addressing an ongoing series of related policy problems. Thus the benefit-cost comparison for PP can generally be expected to become more favourable as the planning horizon lengthens. This explains why PP features so strongly in Agenda 21 and other strategies for sustainable development.

7. Opportunities and Challenges for Economists

Considerable advances have been made in providing a self-interest-based theoretical explanation of how some communities achieve considerable self-reliance in solving their large-group social dilemmas. Hence economists are better equipped now to provide advice regarding the likelihood of self-reliant CA successfully emerging in a given setting or with policy-induced changes to some of the structural variables characterising that setting. Despite the

⁹ However, describing social capital as a public good is imprecise in the sense that non-rivalry does not adequately signify the *positive* effects of its use on its provision.

multitude of structural variables likely to affect this likelihood, it is possible to perform this type of policy analysis by using “coherent, cumulative, theoretical scenarios that start with relatively simple baseline models. One can then begin the systematic exploration of what happens as one variable is changed” (Ostrom, 1998 p. 14)¹⁰.

The insights drawn in this paper from the CA research program suggest that encouraging PP is one way to try to make a given setting more conducive to self-reliant CA. These insights enable economists to contribute, for instance through the aforementioned method of ‘cumulative scenario analysis’, to assessing the likelihood of PP initiatives changing a given setting sufficiently to substantively improve the prospects for self-reliant CA by a local group. Given that (a) PP programs are now commonplace and have considerable resources allocated to them, and (b) many or most of them are not achieving their aim of empowering citizen groups to rely less on governments, it seems that there is an important opportunity here for economists to increase the efficiency of governance.

Of specific interest to AARES and NZARES members are the opportunities implied by the frequent failure of PP to achieve its aim of increasing the capacity of Australian rural communities to self-reliantly address their land degradation problems. Indeed, a few economists have previously speculated that PP might foster this outcome by facilitating evolution of common property regimes (e.g. Musgrave and Sinden, 1988; Musgrave, 1996). In order to recognise these opportunities, however, we need to look beyond the immediate ‘muddle’ of democratic decision making toward the longer-term dynamic benefits that can arise from well-designed democratic processes. Given the breadth and complexity of the social phenomena involved, moreover, cooperation with other social science disciplines will be essential if we are to advance the theory and practice of PP. As agricultural and resource economists faced with this challenge, the following remarks by Sandra Batie (1989 pp. 1098-99) in her presidential address to the annual meeting of the American Agricultural Economics Association remain pertinent: “Close-minded adherence to our ideological convictions can be self-defeating ... if we cling too tightly to conventional neoclassical concepts, we are in danger of trivializing important global problems”.

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¹⁰ This method is illustrated in Ostrom (1998).

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