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Random selection of citizens for technological decision making

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Random selection provides a way to overcome some of the usual problems of citizen participation in technological decision making. It offers representativeness with a minimum of bias and susceptibility to vested interests. There are a number of requirements for the effectiveness of the random selection approach, such as that citizens are interested and capable of rational deliberation. A number of recent experiments with policy juries and planning cells are assessed to see how well they satisfy the requirements for the effectiveness of the approach. While random selection shows great promise as a means for involving citizens in technological decision making, there are obstacles to promoting the use of this approach

for policy purposes, perhaps especially because it so effectively circumscribes the role of political elites.

If citizen participation in decision making about technology is a good thing, as argued by a range of commentators (see, for example, Goggin, 1986; Irwin, 1995; Kleinman, 2000; Laird, 1993; Petersen, 1984; Sclove, 1995; Sklair, 1973; Winner, 1992) then how should it be done? We argue that random selection is a valuable technique for choosing citizen decision makers. This method, implemented appropriately, addresses most of the commonly expressed reservations about citizen participation.

First let us contrast decision making by experts - often characterised as technocracy - and decision making by ordinary citizens. Experts sometimes make key decisions themselves, but more commonly advise policy makers and interest groups including governments and corporations (Elliott and Elliott, 1976). The advantage of putting experts in a key role is that their specialist knowledge is fully deployed. On the other hand, the disadvantages are also well known, including lack of attention to wider social impacts of technology, over reliance on specialist knowledge, acquiescence to those with power (including the power to employ and reward experts), and restrictions on democratic participation.

A fundamental problem with reliance on experts is that decisions about technology are not just about technical matters: they also involve social values. For example, introducing a genetically altered food into the marketplace involves not only issues of technical capability and risk but also questions of impacts on farmers, indeterminate risks for consumers, unequal distribution of benefits and costs, and implicit comparison with alternatives. If decisions involve important social dimensions, this provides a warrant for citizen participation.

Citizen participation in technological decision making has its own set of problems. Let us consider some common objections and responses.

Objections to citizen participation

The most commonly heard objection is that citizens lack expertise, that science and technology are now so complex that only specialists can understand them. The response to this argument is that the technical details are not central to understanding the crucial social dimensions (Doble and Richardson, 1992). For example, not many citizens can understand how a jet turbine operates, but they can understand issues involving siting of airports or choices between investment in air transport versus cycleways. Similarly, not many citizens can understand how a digital camera works, but they can understand the social implications of surveillance cameras. An additional point is that if citizens are kept out of technological decision making, their ignorance is perpetuated. By being involved, citizens can develop a greater grasp of key issues.

Another objection is that few citizens have enough time to become familiar with all the issues that need to be addressed. Perhaps a few can learn enough, but if there are a hundred issues of significance, no one has the time to keep up with all of them. Therefore, having a referendum is inappropriate, since few voters will have more than a superficial grasp of the issues. One response to this is that referendums generate popular interest in issues. In those few technical areas where referendums have been used, such as fluoridation and nuclear power, there has been widespread public debate, with media coverage, public meetings, leafletting and discussion groups (see, for example, Crain et al., 1969). [Note 1: While it not our purpose here to make a case for referendums - we focus on their limitations - research suggests that they are a more robust participatory tool than often supposed (Bowler and Donovan, 1998; Cronin, 1989; Schmidt, 1989).]

This heightening of public awareness may address the problem of inadequate knowledge if there are only a few issues to be voted upon, but does not address the key part of the objection, that there is not enough time for everyone to become knowledgeable about all issues. To address this, a second response is that not everyone needs to be involved in every decision. Just as experts are involved in only some areas, so only some citizens need be involved in any given issue. An example is a consensus conference, involving a select group of citizens weighing up the evidence and arguments.

The move away from referendums to participation by selected citizens leads to a third objection: that the process is unrepresentative and open to influence from vested interests. Members of an advisory panel, for example, may be chosen because they are representatives of important citizens' groups (such as environmental organisations or consumer bodies), are individually prominent, or perhaps because they are personally known to politicians or organisers.

Any such selection criteria can be criticised as picking out "unrepresentative" citizens. Those chosen are likely to be more informed than most, but also are perceived to be either already tied to some "line" (such as the view of an environmental organisation) or open to persuasion (such as through the prospect of jobs, consultancies or visibility).

Thus, citizens who are selected for panels can be open to suspicion of bias from various directions, either as tied to social movements or susceptible to the lure of money and jobs, or even both! Even when appointees are quite open-minded, the appointment process can easily lead to perceptions of bias. If those who make the appointments are seen as biased or having vested interests, then the appointees can hardly escape the same perception.

For proponents of decision making by experts and politicians to make accusations of bias and susceptibility to influence is amusing, since so many experts and politicians are themselves notoriously biased and susceptible to influence. But the criticism should not be dismissed simply due to those who make it.

Let us sum up the main objections to citizen participation in technological decision making. A fundamental problem is limited expertise. If everyone has a say on every issue, then hardly anyone will be really well informed. But if only a few selected citizens are involved, they will be unrepresentative and either biased or open to influence from vested interests, or both.

Rational deliberation

The challenge of fostering informed citizen participation can be approached another way by proposing that the goal should be rational deliberation,

namely a considered examination of the issues, with facts and ideas assessed on their merits. To refer to rationality implies that there is no significant intrusion of special pleading or vested interests. To refer to deliberation implies a collective process of examination, a search for a solution balancing various interests and values.

If the goal is rational deliberation (Dryzek, 2000; Habermas, 1984, 1987), then there has to be an opportunity for participants to understand the issues at a suitable depth. That rules out everyone being involved on every issue, such as through many referendums. So the number of participants has to be limited in some way. But preset positions or susceptibility to vested interests also militate against rational deliberation: the deliberation has to be as free as possible of special pleading, personal ambitions and insider dealing - the influence of power undermines rationality (Flyvbjerg, 1998).

Ideally, the participants would have nothing personally to gain from their participation except the satisfaction of serving the common good (Mansbridge, 1990). This is a challenging goal indeed! (Experts are seldom in a position to carry out rational deliberation either, since their careers normally depend on pleasing those who pay their salaries.)

While there are many excellent participatory mechanisms (Carson and Martin 1999, Appendix), here we focus on ones using random selection, which provides a powerful means for moving much closer to the goal of rational deliberation for the common good. Consider a panel made up of citizens chosen randomly from the population and given the task of examining a single technological issue. Only some people are involved, so the problem of lack of familiarity can be overcome, assuming the panel members are given sufficient time to learn about the issue. Since the panel deals with only one issue, the members are not overloaded.

By choosing the panel members randomly, the problem of prior bias is overcome: there is no group of selectors who can be accused of bias, because no one can know in advance who will be chosen. There is one remaining problem: susceptibility to influence from vested interests. Once panel members are chosen, then pressure may be applied to them, and this is certainly a

possible hindrance to rational deliberation. But at least some members are likely to resist this pressure, especially if their participation on the panel has a strictly limited duration, after which they return to their usual occupation.

This is similar to participation on a criminal jury. While a few jurors may be influenced by bribes or other pressures, this is recognised as at most an occasional problem. Judges, in comparison, can develop much greater expertise but have careers at stake and hence may be susceptible to systemic pressures. Another point is that judges commonly operate alone, reducing opportunities for deliberation.

In presenting this account of the possible virtues of random selection for technological decision making, we have made a number of assumptions as well as several claims. [Note 2: While this list is based on our own assessment, in compiling it we have drawn on many studies; see, for example, Joss and Durant (1995), Renn et al. (1995) and others cited in Carson and Martin (1999).]

1. A significant number of members of the public are willing to devote time and energy to examining a technological issue in some depth.
2. Random selection can be used to choose a cross section of citizens who are representative of the population according to specified criteria.
3. Most members of the public are capable of grasping the essential aspects of complex technological issues.
4. Few randomly selected citizens have significant biases or preconceptions that would inhibit rational deliberation.
5. Randomly selected citizens are not very susceptible to outside pressures.
6. Procedures can be devised to foster rational deliberation by a group of randomly selected citizens.

Each of these six points is required if random selection is to be a suitable method for technological decision making. While we have given a number of arguments why random selection is likely to be a good approach,

every one of these points is ultimately an empirical issue, namely something to be assessed by trying out the approach and seeing how it works.

We have already mentioned criminal juries as one example where there is a lot of experience with random selection of citizens for decision making (Abramson, 1994; Hans and Vidmar, 1986). Some juries deal with technological issues, for example when a chemical corporation is accused of causing death through illegal discharges. But in courtrooms, the terms of reference are quite narrow and seldom designed for policy purposes. So while much can be learned from studies of juries, juries are hardly an ideal testing ground for our points.

In ancient Greece, especially ancient Athens, random selection was widely used to choose officials and key decision-making bodies (Hansen, 1991). Indeed, ancient Athenian democracy was largely based on random selection, with power being exercised in the form of persuasive oratory. Voting played a comparatively small role. Again, there is much to be learned from ancient Greek democracies, but today's societies are so different in many ways that any conclusions would have to be further tested in contemporary circumstances.

Fortunately, this has already occurred. There have been hundreds of trials of random selection for decision making, with many of these trials addressing technological issues. In the 1970s, planning cells were tried out in Germany (Dienel, 1988, 1989) and policy juries, a similar concept, were studied in the United States (Crosby et al., 1986). The term citizens' juries covers both types. The bulk of uses have been in the past decade, in many different western countries (Carson and Martin, 1999). With this wealth of experience, it is straightforward to see whether the requirements for the effectiveness of random selection for technological decision making actually hold in practice.

(A similar consultative mechanism is the consensus conference that has its roots in the U.S. health system but has been modified in Denmark where it is now integrated with the parliamentary system. Inspired by the Danish example, consensus conferences have been conducted in dozens of countries with the subject area usually one involving a contentious scientific or

technological issue (Cartlidge, 1999; Fixdal, 1997; Guston, 1999; Renouf, 1999). However, only a few consensus conferences use random selection.)

Other consultative mechanisms using random selection that have been the subject of considerable research are the televote and the deliberative poll, emerging from the U.S. but since then conducted in Britain, Denmark, New Zealand and Australia.

The case studies that follow are drawn from the personal experience of one of the authors - Lyn Carson - who has been involved with a televote, two deliberative polls, numerous citizens' juries and a consensus conference, all conducted in Australia. All case studies involved random selection and provide data for an examination of its efficacy. In the next section, one case study will be examined in detail and used to interrogate each of our assumptions and claims. Then some general observations will be made that relate to a broader range of case studies.

Citizens' jury on container deposit legislation

In 2000 in the Australian state of New South Wales, the Minister for the Environment commissioned an independent review into container deposit legislation by Stuart White from the Institute of Sustainable Futures (ISF) at the University of Technology, Sydney. ISF's social research included several components, including public submissions, stakeholder interviews, a televote and - of primary interest here - a citizens' jury. The jury was considered an important addition because many quantitative studies had been completed on public attitudes to container deposit legislation in Australia and other countries but there had been very little qualitative research that might uncover its level of acceptability to a well-informed population.

Container deposit legislation (CDL) is a means of recovering container materials - such as soft drink bottles - for recycling or reuse. Such legislation typically requires consumers to pay a small fee, such as five cents per bottle, on purchase of a container, with the fee redeemable when the container is returned. CDL is a complex issue involving polarised views

among industry, environmental and government organisations.

CDL is not the only way to recover recyclables: another method is kerbside collection on a voluntary basis. CDL's supporters believe it to be an effective means for dramatically increasing recovery rates. Kerbside recovery in New South Wales (NSW) is funded by local government (and therefore its ratepayers), whereas in contrast CDL places more responsibility on industry.

Powerful industry groups have lobbied in opposition to CDL, ostensibly on behalf of consumers. Environmentalists have been equally vehement in extolling CDL's virtues and in claiming it has citizen support. As with most policy formulation, citizens have been excluded from the debate despite its impact on their daily lives, with interest groups claiming to speak on their behalf. ISF wanted to include typical citizens in the CDL debate.

Random selection was used to select a small cross section of citizens. ISF wanted participants to bring a wide range of views to the discussion in order to see whether any consensus could emerge from this diversity.

Recruitment

Recruitment for the jury of 11 was carried out by randomly mailing 2000 households. No specific information was offered about the issue to be discussed, simply an invitation to participate in an innovative consultation method that had the potential to influence government policy. The citizens' jury process was described and an offer was made to cover basic expenses should recipients be randomly selected from the pool of willing citizens.

There were 142 responses or 7% of randomly selected citizens who were willing to devote a weekend (Thursday night through to Sunday) to discuss an unknown policy issue. Respondents provided sufficient detail (sex, age, location, education, occupation, ethnicity and household size) to allow a socio-demographic profile to be matched. The requirement was to match key demographic and other social characteristics of the general population.

By matching to this profile, organisers found a suitably diverse range of participants drawn from single-person households as well as large families, from rural areas as well as suburbs of Sydney and so on. Participants came without a known vested interest in the debate except as it affected them as consumers and ratepayers. Indeed, the participants demonstrated that they reflected a wide diversity of viewpoints in the discussions that took place over the three days of deliberations. At the last minute, industry stakeholders refused to participate as witnesses in the jury process so participants had to be content with independent presentations of the polarised views - to avoid a distorted array of presentations.

The opinions of participants shifted over the three days of discussions with one of the 11 opposed to CDL at the outset and 4 unsure; none opposed CDL on completion with only one still unsure. The discussions and recommendations were thoughtful, reasoned and caring with participants demonstrating a willingness to consider public needs over their own self interest. This included the needs of pensioners and the profits of various industries. Participants gave complete attention to the process of grasping the subtleties and complexity of the debate, often seeking more information from the briefing materials that had been provided by the various adversaries.

Participants came to a central location, away from family or colleagues and interacted closely with each other during this time. There was no media coverage of the event because of the political sensitivity of the issue. Observers who attended the open sessions were instructed not to interact with the group members, who were not lobbied or exposed to outside pressures.

The participants were not placed in a room and left to their own devices, with only dominant voices being heard. If they had, the sort of group malfunctioning that occasionally occurs within legal juries could well have occurred. There were two facilitators whose task was to ensure access to all information, to enable maximum interactivity that avoided domination or manipulation by a few and to encourage the building of consensus (though an ultimate consensus was not a requirement).

The small randomly-selected group is not meant to include every constituency in the population. The

simultaneous televote sought to provide a statistically significant snapshot of the wider community, though with far less opportunity for deliberation. The citizens' jury's strength is in its heterogeneity and that's why attention is paid to demographic representativeness (or quota sampling) from the initial response by those who have been randomly selected. In the case of CDL it was important to have participants who experienced waste management in different circumstances.

Working of jury

A strength of the citizens' jury is its size because this enables high levels of interactivity and mediated debate. The recommendations that emerged indicate that participants were able to find compromises to address points of difference and ways of resolving potential problems. Their recommendations are punctuated with expressions of concern for the whole of society. The recommendations also include their rationale for supporting the introduction of CDL as well as their preference that CDL co-exist with other recycling systems (see box 1).

Box 1. Citizens' Recommendations on Container Deposit Legislation

1: Easy Access

...access to redemption venues for containers be easily accessible to all members of the community.

Consideration must include: provision for urban collection depots to be within a 5 km distance of all residents; elderly, disabled, non-ambulatory, non-car owners and housebound groups are catered for; and consideration of the needs of all the rural population.

2: Pricing

...any increase in cost due to the legislation be shared between industry and consumers and that any price increases not adversely affect low-income earners. The Government should play an active role in monitoring any price increase as a result of CDL.

3: Containers to be covered by CDL

...the following be included in the legislation: all

beverage containers including all alcoholic beverages (eg beer, wine, spirits, ciders etc); soft drinks; juice, water, sports drink and cordial; all flavoured milk varieties; and all other containers that would be a significant contributor to the waste stream...the following be excluded from the legislation: all non-flavoured milk varieties.

4: Industry involvement in the design of the system

...the involvement of industry in the formulation and implementation of the CDL system to ensure that all parties co-operate and participate. The industry should be required to comply with the following guidelines: convenient collection points and ease of access; a fixed target rate of return to be met within a specific period; and a government nominated fixed deposit.

5: Level of deposit

...the deposit be in the range of 5-10 cents.

6: Cost-benefit analysis

...CDL appears to be cost effective on the basis of: reduced landfill; reduced litter; and environmental benefits. It is appreciated that the outcome of the cost-benefit analysis depends on the range and composition of factors included in the analysis.

7. Impact on non-deposit recyclables and existing recycling systems

...that CDL be introduced to work with existing recycling systems such as kerbside collection.

8: Impact on community groups

...established groups such as charitable organisations, non-profit community groups and 'sheltered workshop' situations should not be disadvantaged... and if possible their involvement should be encouraged.

(Additional recommendations addressed packaging, reduction of waste to landfill and community education about waste management.)

The coordinator of the jury, Carolyn Hendriks, attended all of the jury's activities and reports that jury members found an additional service appealing; they did not see the need to choose kerbside collection over CDL. Further, they saw the wastage of resources as the key issue, for example the rising costs of recycling and the financial impact on local government and its ratepayers. The jury believed that the industry that produced the waste should take responsibility for its management. Hendriks reports that the jury members had both personal and public concerns, however, "only those personal concerns that had public weight remained central to their recommendations" (pers. comm. Carolyn Hendriks, January 2002).

The eleven jury members who reached these recommendations were introduced to the topic through written information that had been agreed to by key players in the CDL debate. They came from rural and urban areas and met together over dinner on a Thursday evening with their two facilitators. On Friday morning they heard from the Environment Protection Authority, as well as from the research consultant who had been appointed to complete the independent review, and were also linked via telephone with a US academic who led the group through a Powerpoint presentation. They listened and they asked questions.

During the next two days they wrestled with options and problems and strengths and weaknesses of various issues. They called for more information and demanded clarification when confusion arose. They prioritised their ideas and then worked on their recommendations via a projected computer screen. They discussed every recommendation in minute detail until they were satisfied that their opinions were accurately captured. They resisted unnecessary haste and produced a report of which they were proud.

In summary, random selection was used to choose a socially and demographically representative cross section of citizens. The citizens in this case study showed no sign of susceptibility to outside pressure and they displayed no obvious biases or preconceptions that inhibited rational deliberation. These citizens were prepared to devote time and energy to examining, quite capably, a technological

issue in considerable depth. They did so with the use of procedures that facilitated discussion and prevented domination and manipulation. Thus, this particular citizens' jury satisfied each of the six requirements for random selection to be a suitable method for technological decision making.

Other evidence

The container deposit legislation citizens' jury is quite typical of experiences with randomly selected citizens who collectively examine policy issues. We now turn to some general observations about our six requirements, drawing on further case studies that used random selection, namely citizens' juries, a televote, deliberative polls and a consensus conference that have been conducted in Australia and experienced by one of the authors, Lyn Carson (Carson and Martin, 1999, also see Becker and Slaton, 2000, Fishkin, 1995, Joss and Durant, 1995).

Table 1. Some methods of participation using randomly selected citizens

Citizens' jury and planning cell	A small group (10-25) of citizens, usually randomly selected to match a socio-demographic profile, is invited to deliberate on an issue. The citizens' jury (CJ) meets together for 2-5 days with the help of an independent facilitator, asking questions of expert witnesses and discussing the issue. The group works towards consensus. A report is written for the organising body.
Consensus conference (CC)	Very similar to a citizens' jury, a consensus conference gives the lay panel more control over the agenda setting and choice of experts. A CC would also include some preparatory sessions to attend to team building and sometimes exercises that demonstrate the values-based nature of knowledge.
Televote	A statistically significant sample of randomly-selected citizens is contacted by phone and

	asked to complete a questionnaire. Respondents are sent additional information and encouraged to discuss the material with family and friends, then surveyed once more. Can be combined with a citizens' jury as it was with the CDL case study (outlined in this paper).
Deliberative poll	A statistically significant sample of randomly-selected citizens is contacted by phone and asked to complete a questionnaire. Respondents are invited to attend a gathering where they come together to engage in small group and large group discussion with the assistance of independent facilitators. In the large groups, questions are asked of experts. Participants are surveyed at the end to establish what an entire population would think if it had access to full information and an opportunity to deliberate.

A significant number of members of the public are willing to devote time and energy to examining a technological issue in some depth.

When first invited to participate in participatory processes, citizens respond in a number of ways: surprise, timidity, enthusiasm but sometimes reluctance. The reluctance is most often found amongst older women and the reticence is almost always associated with a lack of confidence in their abilities. They like the idea but consider that others, usually younger men, are better suited for the task.

Organisers of consultation processes therefore may spend time reassuring each prospective participant that it is their very ordinariness that is needed, in other words that the organisers are wanting "typical" citizens, not experts. This is usually enough to satisfy any concerns. Members of the public might still arrive in a sceptical or timid state but they repeatedly demonstrate their willingness to devote time and energy to examining complex planning or technological issues.

Random selection can be used to choose a

cross section of citizens who are representative of the population according to specified criteria.

The citizens who participated in these various Australian case studies were selected in different ways. The deliberative poll used randomised telephone dialling and contacted sufficient people to ensure that approximately three hundred citizens would participate in the final event. In the first Australian deliberative poll, 1220 people were contacted and surveyed and 347 people attended the plenary event. The televote also used randomised dialling and made contact with four hundred people who were surveyed, then sent briefing materials and subsequently surveyed again.

Stratified or quota sampling was used for the juries and consensus conference. With the CDL jury, randomly selected citizens received a postal invitation. With the consensus conference, advertisements were placed in local newspapers calling for people with an interest in participating in research of an undisclosed nature. From the pool of possible participants, the final panels were randomly selected until a predetermined socio-demographic profile (based on census data) was matched.

The result was a diverse group of citizens in terms of age, sex, geographic location, educational and ethnic background, with no obvious prior vested interests in the topic to be discussed. Participants were surveyed before and after these participatory processes so it is possible to track the shift in opinion that occurred.

Most members of the public are capable of grasping the essential aspects of complex technological issues.

Citizens are understandably concerned about their own abilities to grasp complex technological issues. For example, in the Australian consensus conference on genetically modified organisms in the food chain, participants doubted their capabilities.

During the two planning weekends that preceded the actual conference, participants uncovered what they

already knew as well as what they needed to know before proceeding. They were given briefing materials that had been developed under the guidance of a steering committee that involved all key stakeholders in the debate. The briefing materials were designed to be as objective and factual as possible while signalling the contentious views that existed.

The first sessions worked on the development of questions that could later be asked of professional and non-professional experts. Participants also selected the experts they wished to question from a list of available experts compiled by the heterogeneous steering committee.

The recommendations that were written by the participants of the Australian consensus conference provide a compelling case for the claim that typical citizens are capable of grasping essential aspects of very complex technological debates (see box). These recommendations are not exceptional: an examination of the recommendations from any citizens' jury or planning cell would tell a similar story of collective competence.

Recommendations from the Australian Consensus Conference on Genetically Modified Organisms

No new commercial release or unlabelled importation of genetically modified foods, both whole and processes, should be allowed in Australia unless and until:

- The establishment of a statutory authority for gene technology with well-balanced representation, public deliberations, and commercially significant sanctions. All genetically modified foods are labelled. We reject the use of the term substantial equivalence because of its narrow scientific application.
- A clear, regulated and precautionary approach to trade in relation to genetically modified organisms has been established by Australia in the Biosafety Protocol, as well as the provision of a specific liability regime, and segregation and labelling of all products.
- Decisions by any regulatory body should take into account more than just science. The

overriding principle when drafting legislation should be the environment and the physical, mental, and social health of individuals.

- The regulation of genetically modified food issues (by ANZFA) should not be moved from Health to Agriculture.
 - There should be an inquiry by the Australian Competition and Consumer Commission (ACCC) into multinational monopolies in the food industry.
-

Few randomly selected citizens have significant biases or preconceptions that would inhibit rational deliberation.

In none of the case studies was there any evidence of significant biases or preconceptions playing a major role in the deliberations. From citizens' questioning and exchanges of knowledge and experiences, it was evident that they were open to the views of their peers. Participants' concerns were made public and discussed until they were allayed or justifiably maintained.

Randomly selected citizens are not very susceptible to outside pressures.

In none of the case studies was there any evidence of participants succumbing to outside pressure. To reduce the risk of this, in all of the Australian case studies the identities of participants were not divulged prior to the various deliberative fora, so there was no opportunity for outsiders to influence participants prior to the events.

With the consensus conference an assumption was made that all participants - experts and non-experts - brought biases, values and assumptions into the discussion. In the planning sessions that preceded the consensus conference, participants discussed the value-laden nature of science and technology and their own beliefs and assumptions were exposed as well. By the time the conference began, participants were cognisant of the various ways in which issues or policies are framed and they consciously sought to separate fact from opinion. This understanding helps

to explain the confidence with which they addressed questions to experts.

Procedures can be devised to foster rational deliberation by a group of randomly selected citizens.

The various groups of randomly-selected participants who usually make thoughtful and considered recommendations did not determine their own group processes. This could have led to manipulation by the better educated and more assertive participants. Instead skilled facilitators used a range of procedures to foster reasoned deliberation and to prevent domination, apathy or dysfunctional compliance amongst group members. The facilitators were instructed to allow the group to find its own way and to have maximum flexibility in terms of agenda-setting and outcomes (Hunter et al., 1996). The procedures used depended upon the issue, but with the following similarities.

- High levels of interactivity were encouraged by the facilitator who ensured that the group stayed on task and that no individual or subgroup dominated the group.
- A steering committee made up of members with a range of orientations and skills, including experts in small-group decision-making processes, had oversight of the process. A diverse steering committee also ensured that briefing materials and witnesses reflected all facets of the debate.
- Micro-processes such as brainstorming, issues/concept mapping and prioritising were used to enable the group to track various opinions and arguments.
- In the consensus conference and citizens' juries, the group was encouraged to work towards consensus. Dissenting opinions were not stifled and the movement towards consensus meant that all views had to be acknowledged. This saw a movement towards the common good.

Conclusion

Random selection of decision makers is a participatory mechanism that attempts to address the fundamental dilemma of widespread citizen participation: not everyone has time to become familiar with all issues of concern, whereas delegating decision-making power to a small group makes the process susceptible to self-interest and external vested interest. The problem of too many issues is dealt with by restricting any group of decision makers to a single issue, while the problem of self-interest and vested interests is addressed by random selection, which eliminates self-selection and prevents any interest group from influencing who is chosen.

There are various ways to implement random selection for technological decision making. We have focussed on citizens' juries because they incorporate an additional virtue: deliberation, something missing from the most well-known opinion-gathering process using random selection, opinion polling. The combination of a single-issue focus and random selection gives maximum scope for the operation of deliberative rationality and restriction of the normally overwhelming influence of power considerations.

The evidence from experiences with groups of randomly selected citizens addressing technological issues is overwhelmingly favourable. Participants reliably demonstrate a willingness to engage in debate, to be influenced by others and to influence others, and to be able to change their views if good reasons are offered.

A by-product of citizen involvement in participatory processes is the social learning that occurs and the stimulation of inexperienced citizens into more active citizenship roles. Recent research by Claire O'Neill (2001), a doctoral candidate with the University of Luton, UK, has shown that citizens are empowered by the experience of participating in citizen juries and frequently go on to become more involved in their workplaces or communities.

Random selection of decision makers does have limitations. No more than a small fraction of citizens can be involved on any particular issue, even if multiple citizens' juries are run (Dienel and Renn, 1995). Therefore it is essential that other avenues for citizen participation, such as meetings, organising, lobbying and direct action, remain available, especially

for those who feel excluded from randomly selected groups.

Only by further experimentation and development can the strengths and weaknesses of random selection of decision makers be better understood. One of the major obstacles to study and implementation of this approach is resistance from politicians and others with more than average power over decisions. The history of the jury system in courts reveals the reluctance of governments to cede decision-making power to randomly selected citizens even for circumscribed purposes.

Only through principled citizen action did juries obtain the limited role they maintain today. It can be predicted that government and corporate elites will be similarly opposed to expansion of citizen decision-making power through citizens' juries. However, examples of state-led participatory processes exist and their robustness has been proven (Abers, 1998; Carson et al., 2002 ; Joss and Durant, 1995).

In this context, debating the pros and cons of the method is only a component of what is required for introduction of citizens' juries in formal rather than only ad hoc decision-making roles. Ideally, rational deliberation is needed about the most appropriate means for fostering rational deliberation. If citizens gain experience with a range of methods of participation - consultation, opinion polls, voting, referenda and citizens' juries, among others - then they would be in a good position to judge which methods are most appropriate for which purposes.

It would be a courageous government indeed that promoted such a wealth of experience, in essence pioneering social experimentation in participatory democracy. Lacking such support, citizens will have to promote alternatives themselves. Promoting random selection has the advantage of limiting the role of self-interest and being seen to do so as well.

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