

The Use of Collaborative Bargaining in Agricultural Policy-Making

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Abstract

Creating a policy that balances the needs of different interest groups and economic sectors presents challenges for policy makers. While many different methods have been developed to address this issue, this report will provide a critical review of the process that is commonly known as *collaborative bargaining* - a technique in which public policy is developed by stakeholders, not government, using a consensus-based approach. This report is composed of four sections - Classification of Issues to be Resolved, Techniques for Identifying Social Preferences, Characteristics of Collaborative Bargaining, and Collaborative Bargaining in Practice.

Keywords: collaborative bargaining, consensus building, policy-making.

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1 Introduction

One of the most difficult tasks facing public policy makers is that of balancing the preferences of different interest groups against one another. At times it seems that every change they propose becomes subject to intense controversy. Restrictions on the construction and operation of dams that benefit fish stocks and improve water quality for downstream urban consumption may also reduce availability of water for agricultural use and impede hydroelectric capacity. Rerouting of a highway to protect endangered plant and animal habitat may also reduce highway safety and increase congestion. And whereas a tightening of rules concerning treatment of animal wastes may improve local water and air quality, it may also reduce farm incomes and increase the price of meat for the urban poor.

In each case, some method must be found for determining whether the benefits of a proposed policy, which are enjoyed by one sector of the economy, outweigh the costs, which are often borne by a separate sector. The number of methods that have been proposed to resolve these questions is almost as large as the number of agencies that have been charged with answering them. Anyone who has worked in public policy development will be able to list a dozen or more of these techniques with little difficulty: public participation, focus groups, scientific management, environmental impact assessment, contingent valuation, cost benefit analysis, roundtables, environmental juries, land management resource plans, and public opinion polls, to name but a few.

The purpose of this Report is to provide a critical review of one such process: *collaborative*

bargaining.¹ Although collaborative processes have taken numerous forms, they all have two characteristics in common. First, public policy is developed, not by government agents, but by representatives of the various groups that have a stake in the issues to be resolved. And, second, the stakeholders must reach a *consensus* on the policy to be proposed. Among the claims that are made for this approach are that:

- it provides a method not only by which the preferences of all members of society are taken into consideration, but also by which the preferences of each group are *weighed* against those of all other groups – in a collaborative process, no change in policy can be made unless every group accepts that change;
- it encourages innovation in the design of new policies; and
- it increases the probability that affected parties will comply with the policies that have been developed.

Section 2 of this report begins our analysis by identifying four categories of conflicts that might be resolved through collaboration. Section 3 then argues that three alternative dispute-resolution procedures – *scientific management*, *public participation* and *cost-benefit analysis* – all suffer deficiencies that make them unsatisfactory. That leads us, in Section 4, to identify the characteristics that will be necessary for collaborative processes to operate successfully. Finally, in Section 5, we investigate the manner in

¹ This process is also often referred to as consensus building, cooperative bargaining, alternative dispute resolution, conflict resolution, environmental dispute settlement, and collaborative decision making, among others.

which collaboration might resolve each of the types of conflicts set out in Section 2.

2

Classification of Issues to be Resolved

As collaborative decision-making processes require that a consensus be reached among all affected parties, those processes can only be employed in situations in which a change in public policy would leave no parties worse off than they were before that change - if a proposed policy imposed costs on one of the parties to the negotiations, that party could not be expected to agree to the proposal unless it was compensated in some way.²

It will be argued in this section that the requirement that no party be disadvantaged implies that there are four types of cases to which it would be possible to apply the collaborative approach. These are cases in which:

- a change in policy would impose no costs on any of the parties;
- a change in policy would benefit all parties (relative to the status quo);
- any party that was disadvantaged as a result of one component of a policy change was compensated through a change in another component of the same policy;
- any party that was disadvantaged as a result of one component of a policy change was compensated through a money transfer from the parties that had benefitted from that change.

² It would appear, therefore, that if a policy change is considered to be so important that the government would introduce it even if some groups in society were opposed, there would be little opportunity to employ collaboration. We will argue in Section 4, however, that even when the government wished to impose such a policy, it could announce the general terms of the policy and then allow stakeholder groups to negotiate its specific terms.

In this Section, each of these cases will be described, and examples, drawn from Canadian agriculture, will be provided. We will then use these cases to investigate, in Sections 3 and 4, whether collaborative bargaining has the potential to improve on current methods of developing agricultural policy.

2.1 Beneficial Management Practices

In some cases, those who are causing a harm either do not realize that their actions are responsible for that harm, or do not realize that there is an inexpensive alternative action they could take that would avoid the harm. In such cases, it may be possible to obtain the desired benefit – reduction of the harm – at minimal cost simply by informing the parties causing the harm how they can alter their behavior.

There are many cases in which this situation occurs in agriculture. When agricultural practices have led to water pollution, government agencies and farm groups have often worked together to find *beneficial management practices* (BMPs) – such as changes in watering methods, improvements in storage of animal waste, alterations in fertilization practices, and modification of tilling methods – that reduce pollution at little cost to the affected farmers.

BMPs have been identified in a number of documented cases. Roy et. al. (2009: 23), for example, reported that in Manitoba's South Tobacco Creek watershed, farmers and local governments experienced "...measurable economic and environmental benefits from improved watershed management..." in some cases focussing on "...agri-environmental improvements relating to managing cattle overwintering sites and improved riparian health management (e.g. off-site watering systems for

cattle.” And Knopf (2006) reports that in some cases, an increase in the number of acres planted in hay would both increase farmers’ profits and reduce damage to contiguous riparian areas.

Also, in the Okanagan valley, farmers have not been allowed to irrigate after September. It has been argued that if that permission was extended for an additional month, they would be able to reduce water use during the summer months, when there was a shortage in urban areas, at little or no cost to the agricultural sector. (See

“When ... individuals have common access to ... a resource ... the tragedy of the commons may arise”

Case Study 1

In many areas, cattle have been allowed to drink directly from creeks, rivers, and natural water holes. Often, in these cases, their hooves act to damage vegetation along the banks, alter the ecosystem of stream beds, and muddy the water; and their waste adds pollutants and bacteria. These actions increase risks of flooding, reduce the quality of drinking water, and harm fish and other aquatic species.

Veterinarians have argued, however, that ranchers’ profits might increase if they were to prevent their cattle from drinking from natural water sources. Rather, if (inexpensive) pumps were to bring water to man-made watering places, such as troughs, cattle would suffer from fewer problems with their hooves, would gain more weight, would have greater reproductive success, and would contract fewer diseases, such as mastitis and dysentery (See Oldman Watershed Council, 2005; and Krist, 1999a, at 28.)

Okanagan Water Stewardship Council, 2008, at ix)

In cases in which it is suspected that improvements in BMPs can be made at little cost, the government’s primary role would be:

- to help affected parties to identify mutually-beneficial changes in farm practices;

- to obtain information from affected parties about current practices; and
- to collect and present technical information about potential beneficial changes.

2.2 Common Property

When a number of individuals have common access to, or ownership of, a resource, such as pasture land, a water body, the ocean, or an air shed, an outcome known as the *tragedy of the commons* may arise. In such cases, although each individual may recognise that his or her actions impose a cost on the commonly-owned resource, the private costs of those actions to that individual are so low that he or she will choose to ignore them. For example, when pollution from one landowner reduces the quality of water to a hundred users, the polluting landowner will experience only one-hundredth of that cost. Hence, even if the cost to that individual of preventing the pollution is less than the total benefit to the hundred users collectively, that cost may well exceed the benefit to him alone and he will choose to continue polluting. If each of the other individuals along that waterway employs similar reasoning, the waterway will soon be heavily polluted.

An apparent solution to the tragedy of the commons is for all of the affected parties to combine to agree to reduce their harmful activities. In this situation, however, the incentive remains for each individual to “free ride” on the

Case Study 2

A common example of the tragedy of the commons arises when expansion of ranching, farming, and urban areas puts pressure on water supplies – particularly in areas of cyclical droughts. There may be sufficient water in most years, but in perhaps one out of ten, all users face the possibility of shortages. In the Nicola Valley of British Columbia, for example, the threat of such shortages has brought a wide variety of users together to negotiate a comprehensive plan that will minimise the costs borne by groups as disparate as recreationists, ranchers, power generators, environmentalists, and city water utilities.

others. In the case of water pollution, for example, each polluter might reason that if everyone else follows the agreed policy, he will obtain the benefits of the policy whether or not he cooperates. Thus, the individual might choose to continue polluting; and if all other users reasoned the same way, pollution would continue unabated.

Furthermore, the same result might occur even if no individual was willing to free ride. All that would be required is that each individual believed that a significant percentage of other individuals would free ride. In that case, individuals might reason that, as everyone else was polluting, the effect of their own abatement would be minimal, and thus they would also choose not to adopt the agreed policy. The failure would have become a self-fulfilling prophecy.

A classic example of the tragedy of the commons has occurred in the Ghost Land Use Zone of central Alberta (Ghost Stewardship Monitoring Group, no date). There, both recreational users and ranchers had overused the forest on a parcel of public land, leaving denuded vegetation and heavily worn pathways. The various user groups are now collaborating on the development of a plan that will benefit all of them.

Similarly, farmers, cities, and industries have been extracting dangerously high quantities of water from the Lake Okanagan watershed and have been contributing to pollution of the lake. It is possible that all of them could benefit from agreements to reduce both water use – thereby reducing the risk of shortages during years of below-average rainfall – and pollution – thereby increasing the quality of water for all of them. Similar problems arise in many other Canadian waterways – notably the South Saskatchewan - in

which each user historically removed water from the system without reference to the others, leading to over-extraction and, therefore, the threat of water shortages.

There are also examples in which the tragedy of the commons arises out of inaction, rather than action. These are situations in which multiple users are subject to a common threat but in which no user takes the appropriate precautions, as all are attempting to free ride on the others. Examples might include the reluctance of individual landowners in the Fraser and South Nation valleys to invest in flood control (Fraser

***“It may be possible to introduce a set of policy changes that make every stakeholder better off, by ‘trading’ losses incurred with respect to one provision against gains made with respect to another.*”**

Basin Council, 2004; and Dennis O’Grady, personal correspondence); and similar reluctance of farmers and others to tackle an alien invasive plant, garlic mustard, in Nova Scotia. (Roy et. al., 2009).

In cases such as this, the government might have three roles:

- it could attempt to find a set of regulations whose benefits exceeded the costs for every participant (or, perhaps, for as many participants as possible);
- it could attempt to identify the specific regulation that produced the greatest net benefit – i.e. the greatest possible difference between benefits and costs; and
- it could enforce the selected regulations.

2.3 Barter (Multi-Factored “Trade-offs”)

Many, if not most, public policies affect numerous groups, in a multitude of ways. Public policy concerning a watershed, for example, might include provisions concerning: allocation of water rights among a number of different users, such as agriculture, industry, and cities; restrictions on permissible pollution levels; construction of dams for water storage, electricity generation, or recreation; and creation of riparian buffers to control floods or protect endangered aquatic species, among many others.

In such cases, it may be possible to introduce a set of policy changes that make every stakeholder better off, by “trading” losses incurred with respect to one provision against gains made with respect to another. For example, conservationists might agree to support the construction of a dam that stored water for agricultural use if farmers would agree, in return, to allow an increased release of water from that dam at times, and in quantities, that were beneficial to endangered species downstream. And recreational users might agree to restrict their activities in regions of the river where they would affect the quality of drinking water in return for access to the lake created behind a dam. As goods are being traded for goods in such cases, we refer to these exchanges as *barter*.

A common example of a situation in which multiple stakeholders are in conflict over the allocation of a large number of policy components occurs when suburban areas of large cities spread into land that also has agricultural, environmental, and industrial uses. Two areas in which this has been extensively analysed in Canada are the Beaver Hills, near Edmonton, (see <http://www.beaverhills.ab.ca>), and the Fraser Valley, east of Vancouver (Roy, et. al., 2009). With respect to the former, interested parties include

housing developers, environmental groups, and the oil industry. As the landscape is highly varied, and as the region provides numerous services, there may be an opportunity for stakeholders to trade concessions among themselves. For example, housing developers might agree to protect certain wetlands as parks, or to situate preferentially in areas removed from the nearest agricultural land, in return for the right to increase the amount of land allocated to housing.

It is also possible that if ranchers have obtained the rights to graze their cattle on public lands, they could “trade” a promise to improve their environmental practices in return for an agreement to allow them to use a larger percentage of the available land. (Krist, 1999b)

In some cases, the government may inadvertently create the conditions for collaboration by introducing policies that are inefficient or inequitable. If a national or provincial policy designed to deal with water shortages or pollution, for example, is inappropriate for a particular crop or region, one stakeholder group may be able to convince others to accept a relaxation in the policy’s specific requirements in return for agreements to alter practices in another. This appears to have been the case in the South Nation River watershed where water utilities, who were faced with an Ontario-wide ban on the release of phosphorous from new facilities, were able to trade phosphorous “credits” with farmers who could obtain the desired reductions by changing their practices.

Trade-offs among stakeholders may also occur when governments have given private companies the right to build pipelines or electrical towers across farm land, or have given oil companies the right to drill on private land. In

these cases, if constraints have been placed on the routes that lines may take, or the areas in which drill rigs can be placed, farmers may be able to induce companies to move their activities to less disruptive areas, in return for concessions with respect to the regulated constraints.

To conclude, when numerous stakeholder groups negotiate over policies with multiple components, the government's role might be:

- to identify circumstances in which trade-offs could potentially be made;
- to determine which changes in policy would be beneficial to all parties; and
- to implement, or enforce, those changes.

2.4 Financial Exchanges (Multiple Factors – Barter not Possible)

In many cases, however, there is no beneficial change in one element of a policy that could provide compensation for a costly change in another. Assume, for example, that real estate developers would like farmers on a city's periphery to reduce the amount of odour or dust that they produce. There may not be a change in zoning laws that developers could offer to accept that would compensate farmers for agreeing to this request - there could be no "trade-off" of one policy element against another, as discussed in section 2.3, above.

Case Study 3

One of the most ambitious collaborative bargaining processes ever attempted was introduced in British Columbia in the late 1990s. There, Land and Resource Management Plans brought together farmers, loggers, the mining industry, environmentalists, municipalities, and recreational users, among others, to develop consensus-based zoning regulations for large regions of the province. In a survey of those who participated in this process, Bruce (2006: 282) reported that many of the issues were resolved when one or more of the parties agreed to accept constraints on their actions in return for concessions from the others; and that "...most were able to provide detailed examples of such trade-offs."

Instead, developers might offer money payments as compensation – that is, a *financial*, rather than a barter, exchange would take place. As the amount that developers could afford to offer for this purpose would be determined by the increase in the price home buyers would be willing to pay, farmers would be induced to reduce dust and odour if the cost of doing so was less than the benefit. In this case, the only role for the government would be to facilitate negotiations between developers and farmers; and to enforce any agreement that they reached.

But this approach cannot generally be used if the benefits from a change in policy are environmental as, in such cases, it is difficult to collect the necessary funds from the beneficiaries.

Case Study 4

In the South Nation River watershed, two groups were emitting phosphorous into the river: farmers and water utilities. When the Ministry of Environment fixed total permissible phosphorous emissions at their current level, it also provided for the possibility that individual users could emit additional phosphorous if they were able to purchase offsetting reductions from other users. What this has meant is that those new users who find it difficult to abate their phosphorous emissions - who tend to be water utilities - make cash payments to those existing emitters who can reduce their phosphorous emissions relatively easily – usually farmers. (Personal interview with Dennis O'Grady, South Nation Conservation Authority)

Although those who wish to preserve native species of fish may place a value that is high enough that farmers *could* be compensated for reducing their emissions of pollution, if it is difficult to identify those who share that value and to collect funds from them, it may not be possible to raise those funds in the absence of government intervention.

This type of situation is common in the agricultural sector. Particularly in areas with high

concentrations of fertiliser use or other sources of polluting run-off, the harm to waterways is often of an environmental nature. In such cases, as it will be difficult to raise funds from those who value environmental protection, it may not be possible for one set of stakeholders, conservationists, to “bribe” another, farmers, to abate their pollution.

Similarly, it is often the case that cattle reduce the quality of riparian areas by trampling vegetation, disturbing streams, and eroding river banks. The Clean Annapolis River Project (2005) responded to this problem by paying farmers to erect barbed wire fences to prevent cattle from accessing river banks; and provided funds to replace saplings and other vegetation that had been affected by the actions of farm animals.

In such cases, the government might have three roles:

- to determine whether the benefits of a change in policy (for example, pollution abatement) exceed the costs;
- to identify which types of policy changes should be implemented; and
- to collect the funds necessary to compensate those groups (for example, farmers) who were harmed by the policy changes.

2.5 Summary

In each of the cases described in this section, government agencies would be able to undertake the recommended actions themselves. However, as it will be argued in Section 3, it will often be difficult for such agencies to measure the costs and benefits of the required changes in policy. Instead, in each case, the government could direct that the parties directly involved use collaboration to determine the optimal policy themselves. The latter approach will be discussed in Section 4.

3 Techniques for Identifying Social Preferences

If a government agency wishes to institute policy changes that increase society's net benefits, it must first obtain information about two sets of factors: (i) the technical relationships among the desired uses of the available natural resources; and (ii) society's preferences for each such use relative to all others. These two sets of information can then be used to optimise social preferences subject to the constraints implied by the technical data.

An example of technical information concerns the relationship between the amount of a certain type of pollution that farmers release into a river and the number of fish that will live in that river. If society values both fish and agricultural products, it will be necessary to determine what the impact is of pollution on fish survival and whether alternative types of farm practices emit different levels of pollution. Similarly, decisions about locating a dam will require information about the effect of the dam on water quality; about the impact of the dam on the amount of water available for farming; and about the amount of electricity that the dam will generate. Questions such as these, that can be resolved through "factual" investigation, we refer to as *scientific* or *technical*.

Once the agency has obtained the desired amount of scientific information, (assuming that that amount of information *can* be obtained (Korfmacher, 2002)), it will be able to identify the set of options that is technically feasible. It might be able to determine, for example, the number of fish that will be killed by emission of a certain number of particles of a particular type of fertilizer. And it might be able to determine what the impact would be on electricity production if a fifty-foot dam was built in a particular location. Specification of these relationships among

alternative uses of natural resources – here, fish habitat, wheat production, and electricity production – identifies the technical *constraints* on policy changes.

Those constraints alone, however, do not allow the determination of society's *preferred* allocation of resources. That determination also requires the development of a method of ranking all possible allocations of resources according to the net benefits that they provide. The planning agency needs to know more than the relationship between numbers of fish and amount of wheat produced, for example. It also needs to know whether society values an increase in the number of fish more (or less) than it values an increase in the amount of wheat.

In this section, we consider three different techniques for identifying social preferences. The first such technique, *scientific management*, implicitly assumes either that all members of society share the same preferences – meaning that the planner, as a member of society, can simply employ his or her own preferences – or that social preferences can be identified at very little cost. The second technique, *public participation*, assumes that planners can discern the nature of society's preferences from the presentations of interested parties at public meetings and "roundtables." Finally, we consider the possibility that planners could use various techniques of direct preference measurement to determine the money values that citizens placed on the *costs and benefits* of various uses of natural resources.

3.1 Scientific Management

Environmentalists commonly call for the use of "science" to resolve environmental disputes. An assumption that is implicit in this recommendation is that most members of society

share the same preferences. In that case, once the set of technically feasible resource allocations has been identified, any individual citizen would be *able* to choose the socially optimal allocation from within that set – because that individual would be able to determine exactly how his or her fellow citizens felt about every issue. Thus, if the government planning agency was staffed by citizens, the planners would not need to canvass their fellow citizens to determine their preferences.³

The planners' job would simply become a technical or scientific one. First, they would obtain the most reliable information about the set of feasible outcomes. Then, they would use mathematical techniques to maximise (well-defined) social preferences, subject to the constraint that any outcome chosen had to be technically feasible. This, we believe, is what environmentalists mean when they argue that government agencies should use “science” to select among environmental policy alternatives. The important question then is: can it be assumed that all citizens share the same set of preferences?

In most circumstances, the answer is “no.” There is ample evidence to suggest that citizens have different preferences across uses of the natural environment. It stretches credibility to argue that all citizens share the same preferences for grizzly bears, or leopard frogs, or loggerhead shrikes. And if citizens do not share the same preferences, then the ability of scientific evidence to *resolve* disputes about the use of natural resources becomes restricted to only two situations: *necessity* and *consensus*.

³ Of course, that the planners were *able* to choose the socially optimal allocation of resources does not guarantee that they *would*.

3.1.1 Necessity

First, as *all* citizens will prefer to live rather than to die, it might be defensible to assume that they share similar preferences for “necessities.” Given this assumption, government planners might reasonably use scientific data to choose policies that provide necessities at the lowest cost.

But consider how this process would operate when allocating water among water users in a valley such as the Okanagan. In that case, it might well be the case that scientists could agree upon a minimum level of water consumption necessary to keep the citizens of the valley alive. But that

“Although there might be a common consensus that it was ‘necessary’ to protect some species from extinction, it is less certain that society attributes the same urgency to the protection of all species.”

level represents only an infinitesimal fraction of the total amount of water used for drinking and bathing, watering lawns and golf courses, irrigating grapes and plums, and providing habitat for threatened species. Once a “scientifically-based” allocation had been made to drinking water, all remaining allocations would require that some relative preference be determined for each potential use over the others.

Similarly, although there might be a common consensus that it was “necessary” to protect some species from extinction, it is less certain that society attributes the same urgency to the protection of all species. For example, although it appears that most Canadians would be willing to

spend substantial amounts to preserve salmon or grizzly bears, it is less clear that members of society would share a common set of preferences for protection of a rare species of snail or a sub-species of lichen. Voting patterns, the results of surveys, and individuals' actions all reveal that whereas some individuals express a high degree of concern for *all* species, others are much more concerned about large mammals and certain large plants than they are about most species of amphibians, reptiles, and mollusks. (Kellert, 1997; Czech and Krausman, 2001.) In this case, it would not be plausible to assume that all members of society share the same preferences, nor that they would all be willing to devote significant expenditures to the preservation of a species' habitat even if those expenditures were necessary to prevent extinction.

3.1.2 Consensus

It is possible that all members of society have agreed – either implicitly or explicitly - that a particular objective should be met, as long as the cost does not exceed some predetermined amount, but have disagreed about the level of intervention that will be necessary to meet that objective. For example, they might have agreed that preservation of caribou was a desirable goal, but have disagreed about the size of the herd that would be needed to ensure a healthy breeding stock. Or they might have disagreed about the number of acres of forest that would have to be preserved in order to ensure that the minimum breeding stock of caribou could survive. In theory, it might be possible for scientists to answer factual questions such as these (at least with sufficient certainty that all parties would be satisfied with the outcome).

Nevertheless, the scientific analysis that would be carried out in such a case could not be

said to be the instrument by which public policy was *determined*. First, before that analysis could be carried out, it would be necessary that an agreement be reached concerning social goals. Which species are to be preserved? What is the maximum cost that society would be willing to bear?

Second, even if some approximate “maximum” expense could be agreed upon, it is quite likely that disagreement would remain concerning the valuation of alternative expenditures. For example, assume that it has been agreed that a specified number of acres of forest is to be closed to human use in order to protect caribou territory. Assume also that, in order to meet this goal, regulators are faced with the choice of closing area A, which is used primarily for cattle grazing, or area B, which is used primarily for hiking. As reasonable people might well be expected to disagree concerning the relative values of grazing and hiking, the regulator is left with the task of measuring social preferences for these two activities. But once it is put into this position, it can no longer be said to be making “scientific” calculations.

3.1.3 Summary

If it is assumed that the government's goal is to produce the greatest benefits for the greatest numbers of its citizens, then social preferences must be maximised *subject to* the technical constraints established by the relationships among the available resources. For example, two components of social preferences might be production of pork and the consumption of water. Maximisation of the sum of the benefits from these two goals will be constrained, however, by the fact that run-off from hog farms often pollutes nearby waterways.

The argument that “scientific” principles alone can be used to allocate natural resources among alternative uses requires that society’s preferences be known by government agents. Given those preferences, agents need only to identify the technical relationships among resources before they can maximize net social benefits. But if citizens differ with respect to their preferences, it is unlikely that government agents would be sufficiently well informed about those preferences that they could select the socially optimal allocation of resources. In this section, we have argued that it is only when resources are so scarce that only “necessities” can be produced that citizens can be assumed to have the “same” preferences. It is only in those circumstances that government agents can be assumed to know what society’s preferences are. It is only in those circumstances, therefore, that scientific principles alone will be sufficient to allow agents to resolve the allocation problem.

3.2 Public Participation

If it is assumed that citizens have differing preferences, and that the government wishes to maximize the net benefits enjoyed by its citizens, the government will have to find a method for measuring its citizens’ preferences. One such method is for the government to hold meetings (or conduct public opinion surveys) in which citizens are invited to express their views. In some cases these meetings are held in the form of “open houses” at which all citizens are free to express their opinions. In other cases, representatives of interest groups are invited to “roundtables” at which interaction among participants is encouraged. In all cases, however, the purpose of these meetings is for the government to collect information from the “public” about their preferences. This approach

runs afoul of at least five serious problems. We discuss each of these problems in turn in this section.

3.2.1 Ordinal ranking

The first problem with a public meeting format is that it seems best suited to ordinal, rather than cardinal, rankings of preferences – in those cases in which a ranking is supplied.⁴ Public meetings rarely give participants (or representatives of interest groups) sufficient opportunity to say more than that they prefer one outcome to the others that have been proposed. Extracting information about the *degree* to which that outcome is preferred to each of the alternatives requires more time than would normally be available in such a forum.

In the case of the determination of water use in a valley such as the Okanagan, participants at a roundtable would not only be asked to decide whether they supported reductions in overall water consumption. They would also be asked to convey their preferences concerning: the allocation of reductions among urban, suburban, and agricultural uses (including allocations among the various types of crops, such as grapes, plums, and peaches); restrictions to be placed on emission of various types of contaminants (both chemical and biological) into local rivers; and the timing of water extraction, both across seasons and between years of low and high precipitation. It is difficult enough to imagine that participants in a public meeting could express their ordinal preferences for such a large set of characteristics.

⁴ In the Banff Bow Valley Study in Banff National Park, the roundtable merely provided a list of the characteristics that it wished Parks Canada to take into account in making its decisions. The roundtable made no attempt to “rank” those characteristics.

It is even less likely that participants could provide reliable information about their cardinal preferences.

But cardinal preference rankings are essential if a government agency is to make informed decisions about the optimal allocation of resources. It is not sufficient to know that individuals prefer policy option X to option Y. If Y is 20 percent less expensive than X, the agency must also be able to determine whether the degree of preference for X is sufficient to overcome this cost differential.

3.2.2 Interpersonal comparisons

Not only does benefit maximisation require that the government agency be able to measure *individuals'* preference orderings among resource allocations, it must also be able to measure preference orderings *between* individuals. In order to determine whether option X is preferred to option Y, the agency must be able to compare the sum of all individuals' preferences for X against the sum of all individuals' preferences for Y. This requires not only that the agency be able to determine individual A's cardinal ordering of X and Y; it must also be able to determine whether A's preference for X is stronger than is B's. For example, assume that A has been able to convince the agency that he would obtain 16 percent more pleasure from X than Y; and B has convinced them that she would obtain 24 percent more pleasure from Y than X. It is still possible that X is the socially preferred outcome, as it is possible that A obtains much more pleasure from both X and Y than does B.⁵

⁵ For example, imagine that A obtains 232 units of pleasure from X and 200 units from Y; and that B obtains 100 units of pleasure from X and 124 from Y. Even though A prefers X by only 16 percent whereas B prefers Y by 24 percent, total

We have already argued that it would be difficult to obtain *intra*-personal measures of cardinal preferences in a public forum. If the agency was to rely on opinions voiced at public meetings, it would virtually impossible to obtain *inter*-personal measures, even if all participants were motivated to tell the truth. (But see section 3.2.3, below.) How would the agency know, for example, whether the preference stated by ranchers for use of a valley was "stronger" than the preference stated by environmentalists for protection of grizzly bears in that valley? How could it determine whether one group's desire to protect a rare snail was strong enough to justify requiring that farmers reduce their use of fertilisers?

3.2.3 Incentive effects

If the goal of the government agency is to choose the set of policies that maximises net social benefits, then each group in a public participation forum has an incentive to exaggerate its preferences. The environmental group that is seeking to increase the protection of salmon will recognise that it is more likely to attain its goal, the more successful it is in convincing the government of the strength of its preferences for that goal. And farmers who oppose the increased protection of salmon will be more likely to succeed, the more able they are to make restrictions on farming appear to be socially costly. As one participant in the Laurel Creek Watershed Study (Waterloo, Ontario) reported to researchers: when " ... you go to a typical public meeting, it's not a place where you can discuss or float ideas and try to come to a

pleasure is maximised by selecting X. Total pleasure from X is 332 units (232 + 100) while total pleasure from Y is 324 units (200 + 124).

compromise.... There's no dialogue. It's a place where you go and try to be forceful... you take a more extreme position because you have to be noticed." (Warriner, et. al., 1996: 265)

To a certain extent this problem can be overcome through close questioning from interested parties. If farmers exaggerate the financial costs of restrictions on agriculture, environmentalists will have an incentive to challenge those claims. And if environmentalists exaggerate the harm that a particular agricultural practice will have on salmon, farmers will have an incentive to correct that information.

Nevertheless, other factors remain that will make it difficult for the government agency to obtain accurate data. The most important of these is that much of the information that is to be conveyed is subjective. Whereas one can provide objective challenges to claims concerning financial costs and benefits, it is much more difficult to challenge parties' claims concerning, say, aesthetic or recreational values. If environmentalists claim to have "very strong" preferences for grizzly bears, for example, it will be extremely difficult for farmers to disprove that statement. And it will be equally difficult for environmentalists to cast doubt on farmers' claims concerning the importance to them of maintaining traditional/historical farming practices.

Also, the ability of government agents to select "true" preferences from among the arguments that are presented to them will be further complicated both by the large number of issues to be decided and by the large number of conflicting groups presenting their views. When there are, say, ten interest groups, each presenting its views on twenty different issues, it will become very expensive and time consuming

"each group in a public participation forum has an incentive to exaggerate its preferences"

for any one group to conduct the research necessary to challenge the statements of the others. It would be expected, therefore, that it is only a small percentage of statements that will be subjected to close scrutiny.

3.2.4 Marginal benefits

In order to select policies that maximize social benefits, the government agency must have information about *marginal* benefits; that is, about the benefits that would be gained or lost if "small" changes were made to public policy. But this requires that, for each characteristic of interest, the agency be able to determine preferences for numerous levels of that characteristic. For example, assume that the agency has been asked to determine whether farmers should be allowed to extract additional water from a river. Environmentalists' preferred outcome might be that farmers extract as little water as possible, whereas farmers may wish to extract as much as possible. In order to determine the extraction rate that maximises their *joint* benefits, the agency will have to measure the marginal gain in benefits experienced by the farmers, and marginal loss in benefits experienced by environmentalists, as extraction rates are increased or decreased. Furthermore, it will have to be able to make these measurements for every possible extraction rate.

This requirement alone does not imply that a government agency *cannot* measure the preferences of the various interest groups. It does suggest, however, that if the number of

characteristics under consideration increases above a very small number, the ability of the agency to collect information about the preferences for each level of each characteristic will be severely compromised. Maximisation of social benefits in this case would require not only that preferences be obtained from each of the many affected interest groups about each of these factors, but also that preferences be obtained about each possible level of each of those factors.

3.2.5 Lack of information

Even if a government agency could surmount all of the difficulties listed above, it would still face the problem that the preferences that were revealed in a public forum might not be “informed.” Assume, for example, that

“Because public input is only advisory to the government agency, groups may feel that they have only a limited influence on policy formation”

participants in a forum had expressed a desire to allow construction of a dam, without realising that an endangered species of fish would be harmed. It is possible that public policy decisions based on that expression would not maximize social benefits.

But most participants in public forums will not be well informed about the implications of alternative government decisions. First, as many participants attend public forums as individuals, they will not have the resources to inform themselves fully about the policy options that are available or about the technical implications of alternative policy choices. Second, as the number of issues to be considered at any forum increases, the ability of groups, such as environmental organizations and businesses, to keep fully informed will diminish.

Furthermore, such groups may not have an incentive to invest significant funds obtaining additional information. Because public input is only advisory to the government agency, groups may feel that they have only a limited influence on policy formation. If so, the costs expended gathering additional information may exceed the expected benefits to be obtained (measured in terms of changes in policy). (Koontz, 2006)

3.2.6 The role of public participation

The issues raised in this section suggest that public participation will allow government agencies to obtain reliable information about social preferences only when the number of issues to be analysed is very limited. A public forum might be able to provide useful

information about a proposal to build a fence to protect a stream from cattle. But it is unlikely to be able to provide an accurate measure of preferences for a proposal to reduce water consumption by all users in a watershed.

This does not mean that public forums have no role to play in resolving complex problems. Forums might, for example, act as “brainstorming” sessions at which participants could suggest novel methods for dealing with policy issues. But this still does not provide government agencies with information about preferences.

3.3 The Cost-Benefit Criterion

Some of the problems identified in the preceding section could be resolved if individuals were able to attach dollar values to their

preference orderings. Assume, for example, that environmentalists were able to convince the government that they were willing to pay \$10 each to protect grizzly bear habitat, and that ranchers were to reveal that they would be willing to pay \$75 each for the right to graze their cattle in that habitat. The government might then be able to determine whether a region should be closed to grazing by multiplying the number of environmentalists by \$10 and comparing that figure with the result of multiplying the number of ranchers by \$75. This approach, which is often referred to as "preference measurement" or the *cost-benefit criterion*, has been the subject of considerable interest and debate among environmental economists. In this section, we offer a critical review of this debate.

We consider three broad critiques of the cost-benefit criterion. The first, which we refer to as the *measurement problem*, is that the answers that respondents provide to questions concerning their preferences cannot be considered to be accurate measures of those preferences. The second, which we refer to as *empirical reliability*, is that the answers that have been obtained from surveys differ so dramatically from those that would be expected *a priori* that they cannot be considered to be reliable. Finally, what we call the *complexity problem*, is that even if the first two problems could be resolved, most environmental questions involve such complex issues that respondents could not be expected to provide reliable answers to questions about their preferences.

3.3.1 Measurement issues

A wide variety of reasons have been given for believing that the answers that are given to surveys may not accurately reflect respondents' preferences. As these reasons have been

discussed in some detail in the economics literature, we summarize them only a few of them here.

- Sequencing - It is commonly argued that consumers place less value on an additional dollar of expenditure, the greater is the level of expenditure that has already been made. For example, consumers are assumed to value their "first" glass of water more than their second, and their second more than their third. Similarly, voters are assumed to be willing to spend more on one "extra" unit of environmental protection, the lesser is the protection that has already been undertaken.

This effect (which economists refer to as the declining marginal utility of consumption) creates the following problem for the evaluation of environmental benefits: Assume that the government is considering the introduction of two environmental policies, J and K. Economists would expect that K would be valued more highly if respondents were asked about K alone than if they were asked to evaluate J first and then to value the *addition* of K. That is, the valuation of K will

"virtually all survey responses will overstate the 'true' willingness to pay for any individual policy."

depend crucially on the *sequence* in which questions about J and K are asked. This sequencing effect may arise either when questions about two policies are asked in one survey or when one policy is introduced before questions about the other are asked.

- *Part/whole* - It has often been argued that when consumers are asked to evaluate a single environmental policy, such as a

proposal to protect a species or a habitat, their responses implicitly reflect their valuation of all similar policies. Their expressed willingness to pay to protect wolves, for example, might more accurately reflect their willingness to pay to protect all endangered mammals. In the words of Diamond and Hausmann (1994), consumers might obtain a “warm glow” (Andreoni, 1988) from contributing to an environmental “cause;” but may not be very concerned which cause that was.

If this is the case, virtually all survey responses will overstate the “true” willingness to pay for any individual policy. It may only be possible to overcome this problem by asking respondents to value a very large set of issues at once. But as the number of issues that respondents are asked to evaluate increases, the probability that they will be capable of making all of the necessary comparisons and trade-offs must surely decrease.

- *Marginal/total distinction* – A similar problem is that non-economists are not accustomed to distinguishing between *marginal* and *total* benefits (and costs). But, as was pointed out in the discussion of public participation techniques, many environmental decisions require that policymakers be able to measure the marginal benefits that citizens attach to possible changes in public policy. If respondents are not accustomed to thinking in “marginal” terms, their responses may be unreliable.
- *Mis-specification bias* – Similarly, respondents may misunderstand the question. For example, the respondent might recognise that the attribute that is being evaluated is

complementary with another desirable attribute. If the respondent combines the value of the primary attribute with that of its complement when replying to the surveyor, the value of the primary attribute will be overestimated.

- *Lack of familiarity* – When consumers are asked how much they would be willing to pay for a cup of coffee, a pair of jeans, or a new car, they are able to “anchor” their responses in a lifetime of experience evaluating and purchasing those goods and goods similar to them. When asked about their willingness to pay for programs to protect caribou, or wetlands, or scenic vistas, however, there will be very few circumstances of similar valuations on which they can rely for assistance. Consumers do not, in the normal course of daily life, have to decide how much they would be willing to pay for caribou, wetlands, or vistas. Consumers may “know”

“Consumers do not, in the normal course of daily life, have to decide how much they would be willing to pay for caribou, wetlands, or vistas.”

that they would pay \$40 to \$80 for a new pair of jeans, because they have experience buying not only jeans but also shirts, dresses, other types of pants, and host of related consumer products. But when asked about their willingness to pay to protect caribou, they have virtually no reference category against which they can compare this decision. Their answer must be constructed from “whole cloth.”

- *Insufficient information* – The questions being asked of survey respondents often involve

Case Study 5

Hellerstein (2000) reported that respondents to a survey concerning grassland birds answered that they would each be willing to pay approximately \$1 to preserve those birds. In a follow-up, however, the researchers found that many respondents had recognised that any action taken to preserve birds would also benefit other species living in the grasslands. Over half of the respondents who answered that they were willing to pay at least \$1 subsequently indicated that they did so because "...of the overall effects that supporting bird populations would have on the environment." (Hellerstein, p. 22) Only 20 percent would have paid that much "just for the birds." In this case, had the researchers failed to recognise that respondents were, in effect, not answering the question the researchers had intended, but one about the overall environment, they would have overestimated the value that was being placed on birds alone.

issues that are well beyond their normal bounds of knowledge. Few voters are well informed about the habitat needs of caribou, or about the importance of wetlands for the provision of clean water or nesting grounds for migratory birds, or about the costs and benefits of various types of tillage practices. Yet, if respondents' opinions about resource allocation are to be considered "informed," respondents must be knowledgeable about the impact that alternative policies will have on the environment.

- *Surveyor bias* – Information that is provided by the surveyor, in an attempt to overcome problems of lack of information or misinformation, may bias the responses. For example, as part of the background information to a survey on spotted owls, Hagen et. al. (1992, at 18) indicated to respondents that "a 'scientific committee' had concluded that logging *should be* banned on some forest lands to prevent the extinction of the northern spotted owl." (Emphasis added.) The intention of the surveyors appears to have been to inform the respondents that if society chose to protect spotted owls, some forest land would have to be set aside for each

pair of owls. The information implied, however, that scientists had agreed that spotted owls *should* be protected. To a certain extent, this type of bias can be avoided if surveyors take extreme caution when preparing their questionnaires. However, as it is well known that survey respondents show a predisposition to look for even subtle clues about the interviewer's preferences, and to agree with those preferences, surveyor bias can be eradicated only with great difficulty.

3.3.2 Empirical issues

One of the tests of a system of measuring the public's preferences is that it should yield estimates that are *a priori* plausible. For example, it would be difficult to defend a technique that concluded that the average citizen was willing to spend more than his or her total income on the protection of endangered species. Yet a large number of studies designed to measure preferences have found results that are not credible.

- *"Excessive" expenditure on one factor* – It is not uncommon for studies to find that respondents' reported willingness to pay for one environmental attribute is out of proportion to their willingness to pay for a larger set of such attributes. For example, respondents indicated a willingness to pay

Case Study 6

In a carefully constructed survey of residents of the state of Victoria, Australia, respondents expressed a willingness to pay \$29 per year (per household) to protect one species, Leadbeater's possum, but only \$118 per year to protect all 700 endangered species in that state. (Jakobsson and Dragun, 2001) That is, the implicit willingness to pay for the other 699 species averaged \$0.127 – 228 times less than their reported willingness to pay for possums. Such a vast chasm between the valuation of possums and all other species does not appear credible, particularly when it is recognised that, at the time of the survey, the state of Victoria was spending only \$5 per household on conservation of all species.

\$112.96 for improvements to water quality in Pamlico Sound (North Carolina) alone, but only \$137.00 to improve water quality in Pamlico and Albemarle Sounds together. (Whitehead et. al., 1988) Although it is not surprising to find that marginal utility declines as improvements are added, a decline from \$112.96 to \$24.02 (\$137.00 - \$112.96) does not seem plausible.

- *Sequencing* – There is strong evidence to suggest that the sum of consumers’ stated willingness to pay for the protection of individual species exceeds their willingness to pay for all species together. For example, we have surveyed 13 studies that measured U. S. citizens’ willingness to pay for 21 different species. The estimates in these studies ranged from a low of \$9 per household for the protection of Colorado squawfish (Cummings, et. al., 1994) to a high of \$277 for the protection of the bald eagle. (Boyle and Bishop, 1987) The average valuation across the 21 species was approximately \$35 per household. In the United States there are 5,568 endangered species. If each such species was valued at \$35, each household would have to spend \$194,880 per year on species protection. Clearly, this figure is not credible. Indeed, it does not appear credible that households would be willing to pay *one* dollar per year for each of 5,568 species. The problem is that when researchers ask about one species, they are implicitly asking respondents to value that species *given the current expenditure on all other species*. In

reality, however, once the government begins to make expenditures on some species, we would expect that consumers’ valuation of additional species would decline.

- *Disaggregation* – If respondents underestimate the number of social programs on which their taxes are spent, they may overestimate their own willingness to pay for individual programs. For example, if respondents are willing to spend \$1,000 per year on social programs and they implicitly assume that tax revenues are being used to fund 20 such programs, they might express a willingness to spend \$50 on each such program. Thus, if the government was actually funding 1,000 such programs, implying that citizens would be willing to spend only \$1 on each program, the responses to a survey would overestimate the “true” value of each program by 50 times.

“Proponents of techniques to measure public preferences appear to assume that individual environmental policies can be developed in isolation from one another.”

Case Study 7

One method of testing whether respondents are placing their responses in the framework of a complete government expenditure program would be to begin by asking them how much they would be willing to spend on all social programs. From that starting point, they could then be asked how much of that total they would be willing to devote to each of a set of subcategories of such programs.

This experiment was conducted by Kemp and Maxwell (1993). They found that respondents were willing to vote for a \$595 tax surcharge to increase expenditures on a list of "social programs." Of that, they were willing to allocate \$106 to "environmental protection," from which \$14.10 would go to "human-caused problems." Out of the latter amount, they were willing to allocate \$1.12 to "marine oil spills;" and, of that, \$0.29 to oil spills in Alaska.

When a second set of respondents was asked only how much they would pay to prevent oil spills in Alaska, however, the average response was \$85 - 290 times larger than the "disaggregated" measure. These results strongly confirm the suggestion made under the heading of "sequencing," above, that respondents often dramatically overestimate their willingness to pay for individual social programs.

3.3.3 Complexity

Despite all of the objections raised in sections 3.1 and 3.2, most environmental economists appear to believe that if questionnaires were constructed with extreme care, meaningful estimates of willingness to pay for environmental attributes could be obtained from surveys. This conclusion can only be reached if one ignores the context in which environmental decisions are made. Proponents of techniques to measure public preferences appear to assume that individual environmental policies can be developed in isolation from one another. According to this assumption, it might make sense to develop an elaborate questionnaire that is designed to measure the public's willingness to pay for the protection of one (or a small number

of) species; or about protection of one local area of land; or about reduction of water pollution in a single stream.

This is an unrealistic assumption for two reasons. First, as we argued in section 3.3.1, above, the *sequence* in which the public is asked questions about the valuation of environmental attributes is crucial. There are, for example, hundreds of endangered species in the Canada. We can be certain that a survey that asks voters about their willingness to pay to protect just one of those species will obtain a far higher valuation if that species is the first one, than if it is the hundredth, about which they are questioned. If no species have been protected, voters have been seen to be willing to devote a substantial amount of tax money to the protection of any one species. But if considerable funds have already been devoted to the protection of hundreds of species, voters will have a much reduced taste for the expenditure of additional tax monies. What this means is that even if a questionnaire is carefully constructed to avoid all possible biases and misconceptions, and if respondents are provided with sufficient data to make informed decisions, surveys that are conducted in isolation from one another cannot provide reliable results concerning voters' preferences. The relative rankings that are given to different environmental attributes will be reflective more of the order in which the surveys are conducted than of the relative preferences of the public for the different attributes.

Second, the implicit assumption that preferences can be measured by asking questions about small numbers of issues ignores the fact that most environmental issues are inherently multi-faceted. The question about allocation of water use in the face of an imminent drought

requires that numerous decisions be made about alternative irrigation and fertilisation practices, relative values of different crops, valuation of environmental factors, and timing of extraction. In theory it might be possible to obtain this valuation by asking respondents a question like “how much would you be willing to pay to minimise the consequences of drought?” But such a solution is overly simplistic. It fails to recognise that there is a whole host of possible methods of dealing with drought, including changes in irrigation practices, construction of dams, and reduction of consumer waste. Furthermore, the decision about the response to drought is only one among a large number that have to be made about environmental and industrial policy. In the longer run, governments must also determine, for example, whether to allow further urbanisation or industrialisation of the watershed, whether additional measures to protect endangered species would best be pursued in this region or some other, and whether it might encourage farmers to change the mix of crops raised in the area.

In short, policy makers need to have some method of determining the electorate’s preferences among large numbers of issues. Techniques for valuing “willingness to pay” do not meet this criterion. The number of issues to be considered would simply overwhelm any potential respondent.

The only possible circumstance in which a technique for measuring the preferences of the public could be useful for resolving contentious issues is that in which all participants in the policy debate could be convinced that the technique measured exactly what was intended. It does not strike us as conceivable that any

measure of preferences could achieve this level of consensus in the foreseeable future.

4 Characteristics of Collaborative Bargaining

Economists use two alternative criteria for evaluating the effects of a change in public policy. In the strict version, a change is said to produce an *improvement* if at least some members of society are made better off and no members are made worse off. In the second, weak version, a change is said to represent an improvement if the benefits to those who gain from it exceed the costs to those who lose.⁶ Economists generally prefer *not* to use the latter as it requires that interpersonal comparisons be made: it requires that one be able to conclude that the beneficiaries from a policy valued their gains more than the losers valued their costs. And governments also generally prefer the strict definition, as it does not create a group of citizens who feel aggrieved that they have been made worse off.

It is primarily for these reasons that both economists and politicians have found collaborative bargaining to be an attractive policy-making tool. Because all parties to such decisions must approve of the outcome, it can reasonably be assumed – without having to make interpersonal comparisons – that at least some of them were made better off and none worse off. Many of the problems identified with scientific management, public participation, and cost-benefit analysis are minimized:

- There is no need for the government to make interpersonal comparisons of preferences, as it is the parties themselves who choose which concessions are worthwhile;
- The parties have an incentive to devote time and resources to the collection of information about alternative outcomes as it is their

negotiations that determine the policy that is to be implemented;

- Because each party recognises that, in order to obtain concessions from the other stakeholders it will have to make concessions itself, there will be little incentive to hold to positions that provide little marginal value (and, hence, little incentive to exaggerate preferences); and
- Comparisons among alternative policies will be made on a marginal, rather than a total, basis as negotiations will generally involve iterative “trading” of concessions.

Two other advantages have also been claimed for collaborative processes. The first of these is that the kind of “brainstorming” that takes place when all of the interested parties are brought together may allow for the development of innovative solutions that might not have occurred to administrators using the “scientific approach” describe in Section 3. The second is that groups who had taken part in the collaborative development of a policy can be expected to feel some “ownership” of that policy and, hence, may be more willing to live up to its terms than would groups who had had the policy imposed on them by a third party (for example, by parliament or a government agency).

If it is accepted that these three goals represent the primary reasons why the government may wish to employ collaborative bargaining, it becomes possible to derive a number of characteristics that will be necessary for that process to be successful. In this section, we discuss six categories of such characteristics.

4.1 Mutual Gains Available

As changes in policy can only be made in collaborative processes if all parties agree to

⁶ The strict version is called a Pareto improvement; the cost-benefit version is called a Kaldor-Hicks improvement or a potential Pareto improvement.

those changes, collaborative bargaining requires that there be mutual gains available. If, for example, an agricultural practice imposes a harm (such as odour or water pollution) on neighbouring communities, and there is no method of compensating farmers for the costs of reducing that harm, it cannot be presumed that farmers would agree to change their practice (unless, perhaps, the cost of doing so would be very small). Thus, a fundamental prerequisite for collaborative bargaining is that some method must be available for compensating those parties who are being asked to incur costs.

This compensation does not need to be financial. If the conditions we described in Section 2 concerning either barter or free riders arise, compensation may take the form of a mutually desirable change relative to the backstop policy. Using laboratory experiments, Bruce and Clark (2010, 2012) show that not only are subjects able to make mutually-beneficial trades in these circumstances, they exhaust (or almost exhaust) all of the possible gains. They conclude that collaborative bargaining has the potential to yield strict improvements in policy.

Failure to ensure that mutually-acceptable advances can be made is, in our view, one of the most common sources of failure in collaborative processes. It is not sufficient, as many commentators appear to believe, simply to bring all stakeholders together and invite them to reach consensus. *Each* party must believe that there is some gain to be obtained from such a process. There cannot be a perception that the government made its decision in advance and that public participation was just “window dressing.” Warriner et. al. (1996) argue that this is what happened in hearings concerning the designation of the Grand River as a Canadian

Heritage River. One participant, for example, complained that “... there were certain conclusions that were not going to be drawn from that public participation and we knew ahead of time what those conclusions, those forbidden conclusions, were going to be and by God they didn’t appear.” (Warriner, et. al., 1997: 267)

Furthermore, if any policy recommended by the collaborative process is to constitute a strict improvement, as defined above, it is necessary that every group affected by that policy should be represented in the decision-making body – otherwise it would not be possible to determine (objectively) that no party had been made worse off. This implies, for example, that a policy in which municipal taxes were used to compensate farmers for reducing water pollution could only be said to be an improvement if the affected taxpayers had been represented on the group that recommended that policy.

These two conditions – that mutual gains be available and that all affected parties be included in the decision-making process – have important implications for the design of collaborative bargaining processes, as described in this section.

4.2 Membership on the Decision-Making Committees

One of the first issues that has to be settled when designing a collaborative process concerns the composition of the decision-making committee. In this section, we will consider four aspects of this issue: Should the committee be restricted to “ordinary” citizens (the “value jury” approach), or should membership be restricted to representatives of stakeholder groups? Should individuals who are not resident in the district be allowed to sit on the committee? Should government agencies be represented on the committee; and, if so, in what capacity? And

should individuals be provided with financial compensation for the time and expense they incur on behalf of the collaborative process?

4.2.1 Value juries

Some researchers have recommended that collaborative committees should include *no* representatives of groups that have a vested interest in the outcome of the process, on the ground that such groups will be unable to make sufficient concessions to be able to reach consensus. Instead, it is argued, citizen committees should be modeled on the *value jury* system, in which participants are drawn randomly from the population.

This approach, however, has not received widespread support, in part because it does not ensure that there will be representation from all segments of society and in part because it does not ensure that those individuals who are chosen will be well-informed about the issues. Even if, say, fifteen percent of the population works in the housing industry, there is a high probability that a panel of ten citizens that is drawn randomly will not include a representative from that industry. And even if such a person *is* chosen, it is unlikely that that individual will be knowledgeable about all relevant aspects of the industry, or that that individual's preferences will be similar to other members of that industry. The result is that (i) outcomes chosen by value juries may not maximize *social* benefits; and (ii) the interest groups that failed to gain membership on the committee may refuse to accept the legitimacy of the committee's decisions.

Two approaches can be taken to ensure that representation on the decision-making committees will be as broad as possible. The first is to open the committees to all interested

citizens. The second is to invite all interest groups to send representatives to the committees. In practice, however, these approaches tend to produce very similar committees. The reason for

“If membership in the collaborative process was restricted to local citizens, insufficient weight would be given to the interests of citizens broadly-defined”

this is that, when committees are open to all interested parties, individuals soon find that the amount of work required is overwhelming and they begin to cooperate with like-minded members of the committee. Informally, they begin to construct sub-groups that closely resemble existing interest groups, such as environmentalists, farmers, and developers.

An advantage of using the second approach – inviting participation by interest groups – is that it can be made clear to the members of the committee that they are to represent the views of the groups from which they have been selected. The member drawn from the oil industry, say, can be required to take instructions from the industry as a whole, not just his own firm. In that way, it can be ensured that the members of the panel are not only “drawn *from*” their groups, but are “representatives *of*” the preferences of the members of those groups, thus increasing the probability that any consensus is acceptable to all members of society.

4.2.2 Government representatives

If the decision-making committee includes a representative from every segment of society, and each such member reports back to his/her constituency, any consensus that is reached will

take into account the preferences of all citizens. In such a case, it can be argued that there is no role for government agents to sit as members of the committee. As the role of the government is, normally, to represent the wishes of its citizens, and as those wishes would be represented directly on the committee by its members, no “representative” role would remain for government agents.

Nevertheless, even if committee members are conscientious about representing their interest groups, a number of roles for the government may remain. First, although it is possible, in some cases, to find a policy change that is favourable to all citizens without having to pay compensation to any group - for example, when a policy change could avoid the tragedy of the commons; or when two groups are able to “trade” concessions with one another - in many cases, it is only possible to ensure that no party is left worse off if financial compensation is transferred from one party to another. For example, if a collaborative process is established to improve the quality of water in a river system, it is unlikely that the consensus outcome would call on one group to bear all of the costs of that improvement (because that group would not have agreed to such a recommendation). Rather, consensus will require that those who benefit pay compensation to those who incur the costs.

If the beneficiaries are, say, municipalities downstream, and if those municipalities are represented in the collaborative process, their offer of compensation could form part of the consensus outcome, and there would be no need for representation from other levels of government. However, if the beneficiaries are widely dispersed, they may lack the ability to raise funds to compensate those who have been

harmed by a change in policy. In that case, the government’s role would be to cooperate with the representatives of the dispersed group to establish an appropriate level of compensation. For example, if agricultural practices have created a threat to an endangered species, the value placed by citizens on that species may exceed the cost of modifying those practices. The environmental groups participating in the collaborative negotiations, however, will usually lack access to sufficient funds to compensate farmers. In this case, a government agency might work with both farmers and environmentalists to identify (i) the source of the harm; (ii) the severity of that harm (as perceived by the environmental groups); (iii) the most appropriate method of minimizing the harm; and (iv) the cost of adopting that method. If, in this process, the government agency determined that the cost of minimizing the harm was less than the benefit, it could offer to provide the necessary funds.⁷

Second, future generations *cannot* send representatives to the consensus-building process, and therefore they might well be represented by government-appointed bargainers. If the impact that current decisions will have on future resource allocations is uncertain, negotiators may give reduced weight to future generations if, by doing so, they make it easier to find a consensus in the present. For example, if the current generation is willing to discount the effects of its decisions on global warming or on future taxes, a government agency

⁷ Note that, as the government agency’s role, as perceived here, is to determine whether taxpayers consider the benefits of the pollution control to exceed the (tax) costs, it is possible that in some cases, the government agency could be replaced in collaborative bargaining by representatives of a taxpayers’ organisation.

might be appointed to represent “unborn” citizens.

Third, in circumstances in which the parties have developed inconsistent perceptions of the results of failing to reach consensus, the government may be able to act as mediator.

Finally, as it is often wasteful for more than one party to collect scientific information about the same phenomenon, it will usually be desirable that one, impartial agency – possibly a government department – collect that information. In this case, the government would act only as a “resource,” not as a participant.

4.2.3 Non-residents

It is sometimes argued that only residents of the affected area should be allowed to sit on the consensus-building committee, as they are best informed about the characteristics of that area, and as it is they who will be affected by any changes in policy. This argument has a number of deficiencies, however. First, there are some issues, such as preservation of endangered species or protection of watersheds, that are of general interest to all members of society. If membership in the collaborative process was restricted to local citizens, insufficient weight would be given to the interests of citizens broadly-defined; and excessive weight may be given to issues of local importance. For example, if a local community was heavily dependent on agriculture, the citizens of that community might be more willing to accept agricultural practices that were harmful to the environment than would most citizens – in part because any constraints imposed on agriculture would affect the local economy; and in part because the amount that all citizens in a country would be willing to pay for environmental improvements is greater than the

amount that local citizens would be willing to pay. (Behan, 1988; Griffin, 1999)

Second, if the goal is to set aside a certain percentage of a province’s land for some desired use, such as environmental preserve, farmland, or undisturbed watershed, it would not be efficient to require that each region in the province set aside the same percentage. Rather, the preferred policy would be to concentrate preservation in those regions where it was least expensive or most productive. But if decisions are made on a local basis, it will be difficult to achieve this. (Koontz, 2006) If regional collaborative processes take place separately but simultaneously, there may be little opportunity for one region to “trade” with another. And if collaboration takes place sequentially, there may be pressure for the “first” regions to preserve more resources than appropriate for those regions, if negotiators cannot be certain what subsequent regions will do.

Third, it will sometimes be possible to make all stakeholders better off if an activity is moved from one region to another. But if the region to which the activity is to be moved is not represented in the collaborative process, the views of the residents of that region may not be taken into account. For example, the “solution” to a conflict between urban dwellers and hog farmers might be to pay the farmers to move to a district that is distant from their current location; and the solution to a dispute between farmers and the builders of a pipeline might be to develop a new pipeline route well away from the one that was initially proposed. If the residents of the new locations were not consulted, however, it could not be said that this policy was a strict improvement, as defined above.

Finally, many “local” stakeholders are actually branches or affiliates of much larger regional or national organisations. Local food processing plants, pulp mills, and oil refineries may all be owned by national or even international companies; local farmers may be members of national farm associations; and local conservationists will often belong to regional or national environmental groups. If the local representative of any one of these organisations is receiving information and financial support from their parent office, whereas the other stakeholders represent truly local organisations, there may be an imbalance in negotiating ability that will bias the results. When such imbalances seem likely, it may be desirable to restrict collaborative processes to a regional level.

4.2.4 Financial compensation

One of the characteristics of collaborative processes is that they often require lengthy, complex negotiations that impose significant costs on participants. In order to avoid biasing outcomes in favour of those groups that are most easily able to raise funds to support their representatives, the government might be advised to provide a daily stipend to committee members. As Maas (2011:101) notes with respect to Irrigation Advisory Committees (IAC) in Ontario, for example:

Under the IAC framework, members are to be compensated for attending meetings, for engaging in mediation exercises, and for mileage and phone calls. However, the agricultural community views the level of compensation to be minimal compared to the effort, and a lack of adequate and long-term funding for the IAC program makes assurance of

“if the backstop is a new policy that imposes significant constraints on one of the stakeholder groups, that group might refuse to participate in collaborative bargaining”

such compensation a challenge; together these problems result in a disincentive for farmers to participate.

4.3 The “Backstop” Outcome

The outcome to which citizen groups can be expected to bargain will be strongly influenced by the policy that they anticipate will result if no consensus was reached – the “backstop” outcome (sometimes called the BATNA, or “best alternative to a negotiated agreement”). For example, assume that a dispute has arisen between farmers and environmentalists concerning the amount of water being extracted from a local waterway. A collaborative panel established to resolve this dispute could be expected to negotiate a much different outcome if the government announced in advance that, if the parties failed to reach agreement, it would impose very tight restrictions on the use of water for irrigation than if it announced that it would uphold any water licences that had been issued to farmers historically.

Furthermore, this influence might be felt even if the government made no such announcement. As long as the parties shared similar *expectations* concerning the “backstop” outcome, those expectations could constrain each party’s willingness to consider outcomes that are less favourable to it than is the backstop. Robinson (2006) and Shortt et. al. (2004) both argue, for example, that farmers in Ontario often

“voluntarily” adopt environmental practices because they anticipate that if they do not do so, inefficient regulations will be imposed on them by the government.

4.3.1 Selection of the backstop

Because the backstop policy can be expected to have a strong influence on the outcome reached by the citizens’ committee, at least three important issues arise with respect to the selection of that policy. First, if the government is seriously concerned with the identification of a policy that maximises social benefits, it will have to take care to select a backstop policy that does not exclude that maximum. For example, if the

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In some cases, the parties can manipulate the backstop in their favour. Environmental groups often take producers of pollution and other environmental harms to court. The threat of legal action imposes three costs on producers, arising from: lawyer and expert fees, delays in permission to build or operate new facilities, and uncertainty about the future. Producers may be willing to make concessions in order to reduce these costs.

An example of this phenomenon occurred recently with respect to egg production in the United States. (Jensen, 2012) There, the Humane Society has been organising ballot initiatives to require that all commercial egg production be “cage free.” Arizona egg producers were so concerned such requirements would devastate their business that, even though no initiatives had yet been passed, they agreed to collaborate with the Humane Society to develop compromise regulations. The result of their negotiations was an amendment to Arizona’s existing legislation that will require producers to double the size of their cages, and to install rugs, privacy curtains, and perches.

parties are negotiating over the levels of pollution that farmers will be allowed to emit into waterways, the outcome will be quite different if the government announces that, in the absence of an agreement, it will allow unrestricted pollution than if it announces that it will require significant

constraints on pollution. In the former case, if environmentalists experience difficulty raising funds, they may be unable to compensate farmers for investing in pollution abatement; whereas in the latter case, if farmers cannot raise funds for that abatement, they may have to close down. Yet neither outcome may be the socially preferred one.

Second, if the backstop is a new policy that imposes significant constraints on one of the stakeholder groups, that group might refuse to participate in collaborative bargaining, preferring instead to lobby the government directly. If, for example, the government was to announce a pollution policy so restrictive that farmers were faced with having to close down, it is less likely that they would enter into collaborative negotiations than it is that they would appeal directly to the government.

A corollary of this argument is that if the government expresses a bias in favour of one or more of the parties to a dispute, those parties will also have little incentive to participate in collaborative processes. It has been argued, for example, that in the 1990s hog farmers in Quebec refused to engage seriously in negotiations over environmental practices because they “... had direct access to the office of Premier Bouchard.” (Berny, et. al. 2009, p. 42)

Nevertheless, there may be circumstances in which public opinion is so strongly in favour of a change in policy that those groups who are disadvantaged by such a change may agree to work within the constraints that it establishes. In such cases, the role of collaboration will be, not to obtain consent to the new policy, but to identify improvements to that policy that all stakeholders will consider to be preferred to the announced backstop policy. When the Canadian and

American governments signed a treaty to deal with pollution in the Great Lakes, for example, Ontario water users recognised that they were unlikely to be able to obtain significant changes in that treaty. Instead, they worked to find the combinations of local policies that were least costly to them. (Shortt et. al. 2004)

Finally, care must be taken to avoid situations in which governments introduce policies that favour one group over another, then (disingenuously) announce that they will allow the parties to negotiate any consensus-based alternatives they wish. Such alternatives may meet the criterion that they are strict improvements on the backstop policy; but they will not meet the criterion that they represent an honest attempt to maximise social benefits. Again,

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It is not always necessary that the backstop outcome be a government policy. In 2001, farmers, ranchers, and towns in the Oldman River watershed of southern Alberta were faced with the possibility of a severe drought. Due to the prevailing prior appropriation (or "first in time, first in right") water licensing system, those with junior water rights (i.e. those obtained most recently) would lose most of their water, whereas those with senior rights would be able to extract their full allocation. In this case, one might expect that the senior water rights holders would have little or no incentive to redirect water to junior rights holders.

Nevertheless, significant reallocations of water did occur. Although there were numerous reasons for this, they arose primarily from a principle that one commentator (Dave McGee, fn. 8) referred to as "overlapping areas of influence." Specifically, the residents of the watershed were interconnected in many ways that made it difficult for the senior rights holders to ignore the needs of the junior holders. Many of the junior holders were the children of senior rights holders, for example; members of both groups shopped and went to church in the same towns as one another; some senior rights holders lived in the towns whose water allocations would be reduced in a drought; and one of the junior rights holders was a plant that processed the crops (potatoes) that were grown by senior rights holders. Collectively, these factors increased the "costs" to the senior rights holders of maintaining their allocations, thereby opening the possibility that a consensus could be found in which they gave up some of those allocations.

in such cases, it would be expected that attempts at collaborative bargaining would normally fail as those parties that were dissatisfied with the backstop chosen by the government could be expected to turn to the political system rather than collaborate on the establishment of an outcome that was unfavourable to them.

4.3.2 Framing

In many cases, the participants in collaborative processes are drawn from local businesses, recreation groups, and environmental organizations. These groups often find the number and complexity of the issues facing them to be overwhelming. Governments may be able to reduce this complexity somewhat by "framing" the issues; that is, by asking the committees to resolve only a selected number of problems set within a larger framework. – even if this means that some recommendations that would improve social benefits will be "missed." If the government wishes to obtain advice about improving the quality of water flowing into a particular bay on the Atlantic coast, for example, it cannot also expect a (local) citizen's committee to comment on government policy concerning: fishing licences along the entire coast, protection of other rivers in the Atlantic region, or national policy concerning endangered species.

One method that is commonly used to determine a local "frame" is to establish a region- or nation-wide collaborative process whose purpose is to develop broad guidelines for resource policy. Those guidelines could then act as the framework within which local stakeholder groups would negotiate variations that were appropriate to their specific circumstances. This approach has been used to protect endangered

species by both Canada's Species at Risk Act and the United States' Endangered Species Act.

At the same time, however, the limits set on the local committee's task must not be so narrow that important options are excluded, as opportunities to make joint gains will be lost. Furthermore, if binding constraints have been placed on stakeholders' ability to make mutually-beneficial changes in policy, they may decide that their interests are best served by abandoning the collaborative process in favor of some alternative, such as litigation or lobbying.

4.4 Government Commitment

Those who write about public participation processes often argue that it is important that the government provide a strong signal, before the process begins, that it will adopt the recommendations produced by participants. There are two reasons for this. First, if participants do not believe that their recommendations will be taken seriously, they will have less incentive to invest time and effort into the creation of those recommendations than if they expect their recommendations to be adopted.

Second, when interest groups have conflicting opinions concerning the optimal direction of public policy, the incentive to make concessions on their preferred positions or to craft innovative solutions is weakened if they do not anticipate that those concessions will be implemented – especially if they anticipate that they will be able to induce the government to ignore any compromise solutions in favour of the outcomes that they prefer. For example, those who favour reallocation of available water to agriculture cannot be expected to bargain seriously with those who favour reallocation to urban use if they believe that the government will ignore any

recommendations from a collaborative process – particularly if they expect that the government's decision will be to adopt agriculture's position, regardless of the planning outcome.

4.5 The Right to Trade

Before stakeholders can “trade” changes in policy components, they must have the right to make those trades. It is not uncommon, for example, for provincial legislation to bar holders of water licences from selling or trading their rights; and environmental regulations often set

“through the use of ‘brainstorming,’ the parties may be able to identify changes in policy that would not otherwise have been apparent.”

clear limits on the amount of pollution that individual producers can release into waterways. In the presence of these rules, a collaborative agreement could not be reached in which senior water rights holders agreed to reduce their use of water in return for an agreement by junior rights holders that they would accept increased pollution. Thus, if collaborative efforts are to be employed successfully, governments will have to write their regulations in such a way that those who benefit are allowed to exchange a loosening of those regulations in return for concessions elsewhere.

4.6 The Hold-out Problem

In some cases, consensus processes break down because one (small) group refuses to make concessions on its position. This is particularly likely to occur when the preferences of such a group are diametrically opposed to those of all of

the other participants. Three approaches for resolving this problem seem possible.

First, if the group is relatively small, the other groups may be able to find a concession that would appease the “dissenting” group. For example, ranchers and environmentalists might both be opposed to the construction of a ski hill in a particular region. They might, nevertheless, be prepared to allow a small area to be developed for skiing in order to induce skiers to agree to a regional plan that restricted development elsewhere.

Second, in cases in which the negotiating committee cannot raise the resources to compensate the dissenting group for its cooperation, it might be desirable that the government intervene. For example, fur trappers might be able to “hold up” agreements among loggers, ranchers, and environmentalists unless the latter could provide financial compensation to the trappers for giving up their livelihood. But the free rider problem often makes it difficult for representatives of broadly based groups, such as environmentalists, to raise money from their supporters. Thus, even if the trappers would be satisfied with a relatively small “bribe,” consensus would fail. In such a case, it might be desirable for the government to consider a request that it provide the necessary compensation to the dissenting group. A payment of, say, \$1 million to the trappers might very well be benefit maximising if it permitted a multi-million dollar deal to be consummated.

Finally, the government might signal that it would be willing to overrule the “veto” of a small dissenting group if the other participants could show that the cost of acceding to that group’s demands significantly outweighed the benefits. For example, assume that a group had formed to

preserve the habitat of a particular non-threatened species and that preservation of that species would require severe restrictions on human activity on a large tract of valuable land. If strict consensus was required, that group could block agreement among all other groups. To avoid this, the government might require either that the dissenting group provide a convincing argument that the benefits of its position exceeded the costs; or that the “majority” group provide a convincing argument that the costs of the dissenters’ position exceeded the benefits.

5

Collaborative Bargaining in Practice

In Section 2, we identified four situations in which collaborative bargaining might be relevant. In this section, we re-visit these situations to discuss how collaborative bargaining might apply in each of them.

5.1 Beneficial Management Practices

In Section 2.1, we argued that, in some circumstances, there will be practical changes that could benefit one or more stakeholder groups without imposing costs on any other – what are often called *beneficial management practices*, or BMPs. For example, it is possible that a change in the type of fertiliser that was used or in the rotation of crops could reduce air or water pollution at no cost to farmers. As introduction of BMPs will be relatively non-controversial, it might be advisable that any collaborative process begin by searching for such practices. Then, only when available BMPs had been exhausted would participants direct themselves to the more controversial questions.

If the reason that beneficial management practices had not been implemented previously was that they simply had not been recognised, collaborative bargaining could be used in two ways to encourage that implementation. First, if all potentially affected parties – farmers, urban water users, environmental groups, etc. – were to work collaboratively, it is possible that they would be able to identify cost-reducing practices that would not have been apparent to any one group working alone.

Second, many cost-reducing practices will have been identified by scientists and other practitioners, and therefore could have been implemented using government regulation. Nevertheless, collaborative bargaining might contribute to the introduction of a new practice

by providing a forum in which all affected parties could work together to determine whether there were variations in the recommended practice that would suit local geographic, economic, and meteorological conditions.

In this way, both the number and quality of cost-saving practices, and the likelihood that stakeholders would be willing to introduce those practices, would be increased relative to a situation in which those practices were imposed by regulation. The role of the government in this case would be

- to bring the parties together;
- to provide scientific information about “best practices” elsewhere; and
- to moderate the collaborative negotiations.

5.2 Common Property

If all parties would benefit equally from a change in policy, but they are unable to enforce any agreement among themselves to implement that change, collaborative bargaining can offer a number of advantages over an administrative approach.

First, through the use of “brainstorming,” the parties may be able to identify changes in policy that would not otherwise have been apparent. As all parties will share in any available gains, they will all have an incentive to maximise the size of those gains and, therefore, will feel free to share any innovations about which they become aware.

Second, as there will be gains to be made, the requirement in collaborative bargaining that a consensus be reached concerning any policy proposal will ensure that all parties are satisfied with the rule that is developed to share those gains.

Third, because the parties themselves will have developed the new policy, they may have a greater incentive to live up to the terms of that

policy than if it had been presented to them as a government-created regulation.

The government's role in collaborative bargaining over a common property problem will be :

- to clarify for the parties what the "backstop" position is; that is, what policy the government will impose if the parties fail to reach their own solution;
- to provide scientific and technical advice concerning the effects of alternative policies;
- to provide funding to those parties who cannot afford to attend the collaborative negotiations, if those negotiations require a significant amount of time; and
- to commit to enforcing any agreement that the parties reach.

5.3 Barter (Multi-Factored "Trade-offs")

When the potential exists for the parties to "trade" concessions with one another it becomes particularly important that the government choose a clear backstop position and that it commit itself to enforcing any agreement that the parties reach by consensus. Whereas in the common property case, all parties will be working towards a shared goal – for example, avoiding a water shortage or preventing flood damage – in the barter case, each party will only be able to "gain" if it obtains a concession from the others. Hence, the bargaining process may be much more contentious in the latter case than the former – requiring, perhaps, longer more diplomatic negotiations – and, therefore, may require greater certainty about what the consequences of failure to reach agreement will be and greater confidence that the effort required to reach agreement will be rewarded.

Furthermore, because of the expense of protracted negotiations, it will become important that the backstop position be perceived by all

"because of the expense of protracted negotiations, it will become important that the backstop position be perceived by all stakeholders to be fair"

stakeholders to be fair. Otherwise, one or more of the parties may decide that the net benefits from collaboration will be insufficient and will choose instead to lobby the government or the electorate directly.

Also, if negotiations are more complex in multi-factored cases than in others, there will be greater likelihood of a relatively long negotiation process. Hence, this may be a case in which the government might choose to offer subsidies to those stakeholder groups – such as environmental NGOs – composed of private citizens.

We conclude, therefore that the government's role in collaborative bargaining over multi-factored policies, when trade-offs are possible, will be :

- to ensure that the backstop position is clearly stated and that that position is considered to be fair to all parties;
- to provide objective scientific and technical advice concerning the implications of alternative positions proposed by the parties;
- to offer subsidies to those parties that have limited funds to participate in protracted negotiations; and
- to make it clear that any agreements reached by consensus will be enforced and/or implemented by the government.

5.4 Financial Exchanges (Multiple Factors- Barter not Possible)

When it is not possible to obtain strict improvements through the trading of concessions, it may only be possible to obtain consensus for policy changes if those who incur costs as a result of such changes receive financial compensation from those who gain. In such cases, the roles of collaborative bargaining will be (i) to identify the set of policy changes that provide the greatest net benefits; (ii) to calculate the required amount of compensation to be paid; and (iii) to determine who is to be responsible for paying that compensation.

Of these roles, the latter is, perhaps, the most difficult to implement. If the decisions to be reached in collaborative bargaining are to be consensus-based, all affected parties will have to agree to them. In some cases, this does not create a problem as the parties who would benefit from a change in policy will be able to provide the funds necessary to compensate those who bear the cost of that change. For example, a city that benefitted from an improvement in water quality could offer to raise taxes to compensate the farmers who had produced that improvement.

But if the parties who benefit from a change in policy cannot easily raise funds themselves, those funds may have to come from general tax revenues. In turn, this implies that taxpayers will have to be represented in the collaborative bargaining process. One method of doing this would be for the responsible government agency to announce in advance how much money would be available to the process. There are two drawbacks to this approach, however: (i) it pre-judges the value that the stakeholders will place on a change in policy, thereby forfeiting the ability of the collaborative process to reveal information

about that value; and (ii) stakeholders will have no incentive to request anything less than the maximum that has been offered.

Alternatively, a representative of taxpayers could be appointed to the collaboration process. Ideally, to remain in keeping with the goal of finding strict improvements in policy (as defined above), this representative's role would not be to argue for or against the positions of any of the stakeholders already represented in the process – such as farmers, residential developers, conservationists, loggers, and recreationists – but to obtain information from the negotiations about the strength of stakeholders' preferences for the proposed policy and, therefore, for the allocation of the required taxes. In general, it would be anticipated that the "taxpayer representatives" would be agents of the responsible government departments, such as Environment or Agriculture. However, it is also possible that taxpayer organisations might provide such individuals.

We conclude, therefore that the government's role in collaborative bargaining over multi-factored policies, when trade-offs are *not* possible, will be :

- to ensure that the backstop position is clearly stated and that that position is considered to be fair to all parties;
- to provide objective scientific and technical advice concerning the implications of alternative positions proposed by the parties;
- to offer subsidies to those parties that have limited funds to participate in protracted negotiations; and
- to keep the parties to the negotiations informed concerning the amounts that the government is willing to contribute to the implementation of any proposed policies.

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