

Feature article

Public involvement on a regional scale

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Abstract

This article centers on public involvement conducted at a regional scale, using the U.S. National Assessment of Potential Consequences of Climate Variability and Change (NACC) to ground discussion. Though it is a national program, NACC assessments are being conducted in 19 regions and across several sectors. NACC's environmental issue is intangible and long term. Its "assessment" orientation means that public participation has no clear decision or policy on which to focus. Our role was to provide guidance for, in the language of NACC, "stakeholder involvement." This article discusses two major elements as they influenced our decisions about what guidance to provide the program and how to provide it effectively. The two elements are the institutional and organizational structure of NACC itself and existing theoretical and experiential "golden rules" or "lessons" of public involvement. We summarize our resulting guidance to NACC for its regional assessment teams and our limited knowledge of how that guidance has been used. We end by calling for research to take advantage of the natural experiment that constitutes NACC — multiple, linked, simultaneous cases of regional-scale, assessment-oriented, public involvement. © 2001 Elsevier Science Inc. All rights reserved.

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1. Introduction

Mandated by Congress in 1990, the U.S. National Assessment of Potential Consequences of Climate Variability and Change (NACC) was created to identify and assess vulnerabilities to possible effects of climate change and variability. Public involvement was crucial to this assessment process, as it was originally conceived. Our charge was to provide practically useful public involvement guidance for NACC, particularly for its regional assessment teams.³

We did not simply repackage extant public involvement recommendations for the regional assessment teams. Existing recommendations were useful, but insufficient because of (a) NACC's particular institutional structure and evolution and (b) questions surrounding the design, implementation, and effectiveness of public participation in situations pertinent to NACC. This article discusses our reasoning, how we incorporated or addressed the issues and challenges we identified, and the guidance we ultimately provided to the program. In addition, we summarize our limited knowledge of how NACC public participation⁴ proceeded, with or without our guidance, and some of the impacts of those efforts.

Although focused on climate change and variability, this article should be useful for other regional-scale or assessment-oriented activities, such as water resource management, air pollution control, or waste management, as examples. In addition, by detailing our attempt to navigate the terrain where academic, theoretical principles and real-world application merge, we provide other researchers and practitioners who find themselves in similar situations information they can use in determining how best to proceed.

2. The U.S. National Assessment of Potential Consequences of Climate Variability and Change: an introduction

The U.S. National Assessment of Possible Consequences of Climate Variability and Change is a continuing process that was mandated by the Global Change Research Act of 1990. The process began with a series of regional workshops in 1997, reflecting a new approach to environmental assessment in the U.S. Initially, the vision was to ground the national assessment in dialog at the regional/local level between regional experts and regional stakeholders: farmers,

³ This NSF-funded project (Grant No. SBR-9513010) was conducted by the National Center for Environmental Decision-making Research. The report that resulted from this work (Stakeholder Participation in the U.S. National Assessment of Possible Consequences of Climate Variability and Change: Suggested Guidelines for Doing it Right, NCEDR Technical Report 98-19, November 1998) can be seen at <http://www.ncedr.org/pdf/98-19.pdf>

⁴ The NACC program actually focused on "stakeholder involvement" rather than the more encompassing "public involvement." We use the term "public involvement" in this article because the issues we raise are applicable to this broader sphere.

ranchers, local business people, local government leaders, local interest groups, and citizens at large. Activated by regional workshops, this consultation would raise the level of awareness of local citizens about climate change issues, invite them to consider vulnerabilities to possible impacts, and then identify the major issues at the regional scale from the point of view of citizens and voters. Out of this democratic process of information exchange would come a picture of vulnerabilities of our country to impacts of climate change and variability — not merely as a function of scenarios or local climate change forecasts that could result in arguments about assumptions but as a strong, robust set of views from the grassroots across the country. Moreover, this process would not be a one-time event. The regional workshops and subsequent regional assessments would catalyze the development of stakeholder networks that would support a continuing process of information exchange, education, and outreach related to climate change issues.

However, program leadership changed. With that change, the bottom-up stakeholder-participation-driven approach was overshadowed and to a significant degree displaced by a more conventional top-down approach, emphasizing quantitative scenarios and assessments by a small National Assessment Synthesis Team, composed of national-level experts. As early as November 1997, when a “National Forum” was held in Washington, DC to kick off the NACC process in the Washington environment, participants from earlier regional workshops who were invited to attend were heard to say: “This doesn’t sound like the kind of assessment process that we were asked to be a part of, and we don’t see much of a place for us.”

Growing tension between the original bottom-up approach and the later top-down approach, together with widespread delays in getting agency funding to regions and sectors for further workshops and assessments, culminated in a very tense and sometimes acrimonious Monterey, CA meeting in 1998. As a part of that discussion, top-down proponents expressed deep concern that stakeholder participation would not only be viewed as politically motivated lobbying for public support for Kyoto Protocol ratification but would be so unscientific that it would undermine the validity of the entire assessment. One response was agreement that a set of guidelines for stakeholder participation would be prepared — thus the support for the work described in this article. Another response was a commitment, later largely abandoned, to begin to chart out a “post-2000” process to sustain the assessment process, and associated public participation, beyond the completion of the first national assessment.

Despite these machinations, the process of developing the first national report grew to include 19 geographical regions and 6 “sectors”: water, forests, coastal areas, agriculture, human health, and tribal lands and peoples. To date, more than 2000 people have been involved directly. In addition, a “blue-ribbon” panel of experts and other stakeholders at the national scale serve as advisors to the national summary, a draft of which was delivered to the U.S. Congress in June 2000. This draft presented preliminary results from regional and sectoral efforts,

climate change and socioeconomic change scenarios, and other sources of information. It identified the most important issues and uncertainties for the nation in terms of possible vulnerabilities to impacts from, and potential adaptation and coping strategies in response to, climate variability and change. This massive 3-year effort, undertaken at a total cost to federal agencies of US\$14 million, plus substantial support from other institutions and individuals, focused on two time frames for vulnerability and impact assessment: 2030 and 2100.

3. Planning NACC public involvement guidance: the challenges

Existing literature provided an inadequate basis for NACC public involvement guidance for two main reasons. First, the nature of the NACC program created some significant challenges that existing literature seems not to address. Second, the context and structure of NACC public involvement differs from many of the other situations on which extant guidance is based.

3.1. Challenges associated with the NACC program

NACC's institutional structure and evolution influenced, in a pragmatic way, the kind of public involvement guidance that potentially could be useful.

3.1.1. NACC institutional structure

NACC established multiple, overlapping, and partially nested levels of assessment and, therefore, of public involvement (in NACC language the assessment was to be *stakeholder-driven*). These levels are regional, sectoral, and national. Regional and sectoral assessments are nested within the national assessment. Sectoral assessments crosscut both regional and national assessments. NACC's structure is a logical approach for tackling a dauntingly large task. Although falling under the umbrella of NACC, each team operates largely independently in deciding how to proceed and the elements on which to focus. With regard to public involvement, the teams exhibited substantial variation.⁵ Some teams neither knew nor cared much about public involvement, viewing it simply as a requirement that could or should be fulfilled with minimal effort and expense. Others viewed public involvement as extremely important. In some of these cases, public involvement became the responsibility of people with considerable natural or physical science expertise, but little or no background that would prepare them for planning, implementing, or using the results of public involvement. For this group, typical advice like "early and often participation," and "know your

⁵ Our knowledge of the internal dynamics of NACC and its regional assessment teams comes primarily through Tom Wilbanks, who participated in NACC in several ways. Among his leadership and coordinating roles was his chairmanship of the Interregional Forum.

audience” fails to provide adequate information about how to proceed. The prospect of engaging in public involvement was daunting for this group.

In response to the variability among assessment teams, and in focusing on those teams with limited knowledge of how to proceed, we decided to structure our guidance as a simplistic-seeming set of steps. We thought these steps would be analogous to the overarching steps of an assessment process, and thus familiar to those assessment team members responsible for public involvement activities.

Another element deriving from NACC’s institutional structure influenced our thinking. Specifically, we wanted to provide teams with a consistent framework for their public involvement activities. NACC’s structure established a tension between team independence and comparability among teams. A strong argument can be made for team independence, from the standpoint of building in the flexibility to deal with the nuances of any particular region or sector and from the standpoint of promoting “buy-in” of assessment team members. However, this independence may come at a cost. That cost may take the form of difficulty in synthesizing the information across teams (collected in different ways, with data that may not mesh). It also potentially could take the form of claims of inequities, for example, in extent of public involvement in different regions, its inclusiveness (who was invited, or had the opportunity, to participate), or its influence on the assessment process.

The provision of public involvement guidance, alone, clearly cannot resolve this tension or these potential problems. However, we consciously tried to provide guidance that could provide a consistent, systematic, theoretically sound, and pragmatic basis for public involvement across the regions.

3.1.2. Program evolution

When we began to develop public involvement guidance, NACC already was underway; some participatory events already had been held. They were conducted without the luxury of *knowing* — experientially or theoretically — what does or does not work, or even what criteria to use to define “success.” We also knew that NACC public involvement would continue across the multiple regions and sectors, regardless of any guidance we would prepare.

Moreover, we had the challenge of providing guidance for a program caught in a transition from a bottom-up to a top-down outlook on public involvement. We did not adopt either approach, instead taking the more generic approach of identifying public involvement steps and homing in on goal-setting. The regional assessment teams had the responsibility for choosing their goals; we did not prejudge the relative value of different goals. Rather, we stressed the importance of selecting public involvement methods to help to achieve specific goals. We hoped that assessment teams would use the steps to plan their public involvement activities thoughtfully, to see different activities as means to achieve particular ends and not necessarily as ends in and of themselves. A public meeting, for example, can be viewed as checklist-style accomplishment. However, it may be more productive to view a public meeting as a venue through which to strive to

achieve particular goals (to educate, elicit input, build trust, etc.). Similarly, we hoped to encourage assessment team members to identify potential mismatches between public involvement methods and goals, such as the mismatch between one-way provision of educational information and the goal of engendering trust in the assessment process.

3.2. Challenges associated with public involvement

Public involvement has become a routine part of the environmental decision-making process. Despite nearly three decades of experience associated with the National Environmental Policy Act, alone, successful public involvement remains an uncertain enterprise. Such directives as “early and often” participation, involve “all” stakeholders, and “communicate effectively” with one’s target audience fail to assure that either the sponsors of a project or those who wish to be active participants find the participatory process and its outcomes “satisfactory.” This situation persists for the kind of environmental decision making for which there is considerable — perhaps the most — public involvement experience, namely localized issues⁶ for which there are specific decisions to be made (e.g., facility siting, remediation, or natural resource planning).

NACC, however, represents a very different type of public involvement oriented toward environmental decision making.⁷ First, the scale of involvement is regional, not localized. Second, involvement centers on an assessment process. Third, the substantive issue(s) underlying the assessment may capture relatively little public or stakeholder attention and have few or no near-term consequences.

3.2.1. Involvement on a regional scale

Just as technology developers must make adjustments when they scale up from the bench to demonstration to deployment, and just as ecological scientists find that their understanding of localized systems does not translate to landscape scales, we did not assume that the lessons of public involvement conducted in a single, localized community automatically applied to a multistate region. The extent to which localized public involvement practices can, or should be, “ramped up” to a regional scale is unknown. In addition, there is a weak-to-nonexistent experiential or theoretical foundation upon which to determine how

⁶ Here, we use “localized” to indicate a relatively circumscribed region of impact. That region of impact may be defined according to jurisdiction, natural boundary, or a semi-arbitrary radius. For linear features such as transportation corridors, the impact area may be defined as a certain distance on either side of the feature. Though potentially quite long, we consider these kinds of focal areas “localized,” in contrast with such regions as the southwest or mid-Atlantic, the Rockies or Appalachians, or Colorado or Tennessee River watersheds.

⁷ Water resource management, air pollution control, and, in some cases, waste management (whether municipal, industrial, or hazardous) are examples of other environmental decision-making issues that may share characteristics of this class.

best to adapt localized practices. Where experiential knowledge exists, it is largely undocumented; academic or theoretical literature is scarce.

The sometimes tremendous gap between theory and practice that exists in the more familiar, localized scale likely is exacerbated at a regional scale. As examples, just how much time and effort should be spent identifying or targeting all relevant stakeholders or publics; the extent to which electronic forms of participation should be used; where, when, and how many meetings should be held; and, if eliciting input, whose input to use in what ways are difficult questions to answer when working at a localized scale (Schneider, 1996; Laird, 1993; Mathie and Greene, 1997). These questions may become exponentially more difficult to answer when working at a regional scale, where intra- and interstate politics, varying social and economic patterns, and multiple environmental landscapes are involved.

3.2.2. Involvement for an assessment process

Much existing experience, and a considerable literature, addresses public involvement for tangible items — waste facilities, power plants, and the like — and clear decision points — selecting a waste disposal option, siting a facility in a particular location, etc. In contrast, NACC public involvement centers on a long-term assessment process, where there are no tangible facilities or activities on which to focus and no clear decision points. This situation makes largely irrelevant the category of public involvement goals that focuses on obtaining project- or action-specific approval or disapproval, whether through an “educational” effort to convince participants that a particular choice is a good one or through an interactive process that seeks input. It also may not be immediately obvious what the public involvement goals should be or how to achieve those goals. This ambiguity potentially may produce more confusion than enlightenment among those responsible for planning, implementing, and using results from public involvement as well as among those invited to become involved. For these reasons, our guidance emphasized the clear establishment of goals, followed by the selection of methods to achieve those goals.

3.2.3. Involvement now for long-term future

Assessing climate change and variability is among those topics for which it may be difficult to attract “publics” to involve, particularly in the absence of a recent event or emergency that could serve to galvanize attention. Impacts may occur over a long-term time horizon, and may not be identified with certainty for a considerable time. Moreover, these potential impacts, which could be highly significant environmentally and socially, are devoid of easy (or definitively effective) strategies for avoidance or mitigation. Practitioners must decide the purposes for which they are trying to attract individuals or groups to become involved, and, among other items, whether to cast their net broadly or target particular groups, whether to seek one-time or continuing involvement, and the like. The guidance we developed did not suggest particular

directions to take. Rather, it sought to delineate the kinds of issues that should be addressed in planning, implementation, evaluating, and using the results from public involvement.

4. NACC public involvement guidance: the underpinnings

Formalized external public involvement⁸ does not simply happen on its own, unless the protests of those individuals or groups otherwise excluded from the decision-making process are deemed “public involvement.” Public involvement is a planned activity or set of activities, whether conducted at a localized or regional scale. For many issues, public involvement is not a one-shot deal. The process of producing environmental impact statements, for instance, typically includes at least two opportunities for public involvement — scoping and the comment period following the issuance of a draft document. Decision making about issues as complicated as climate variability and change, hazardous waste remediation, or watershed management can span several years, providing multiple opportunities for public involvement.

Although public involvement can take multiple forms and can address an enormous array of issues, we believe that the following five items are essential to consider when undertaking public involvement activities. These considerations are important whether the scale is localized or regional.

- The decision-making process will fall somewhere along a continuum from authoritative, decide–announce–defend decision making that actually or virtually excludes external stakeholders to decision making in which external stakeholders actually or effectively have complete decision-making authority (Arnstein, 1969; Susskind and Elliott, 1983; Susskind, 1985). The extent to which internal and external involved parties agree about the role of stakeholders in decision making likely will influence agreement over public involvement methods and the effectiveness of the overall process (Klapp, 1988; King et al., 1998; Wynne, 1991; Stewart et al., 1984).
- Involvement is likely to include different levels and types of involvement according to the stage of the decision-making/assessment process (e.g., framing/scoping, conducting, reviewing, implementing, evaluating).

⁸ We distinguish external from internal stakeholders. Internal stakeholders are those individuals or groups charged with either making decisions or providing support for the decision-making organizations. In the case of NACC, the USGCR, Regional Assessment Teams, and climate change researchers are important internal stakeholders. External stakeholders are the other individuals or groups (public or private) interested in, or affected by, the issue at hand. The distinction between internal and external stakeholders can be fuzzy, as in the increasing number of cases where a set of “external” stakeholders receives technical assistance funding to conduct its own investigations.

- Goals need to be considered carefully because they shape every aspect of the involvement process, including decisions about who to involve and how to use the involvement. Ambiguous or conflicting (but unstated) goals can circumvent the involvement process. For example, take the goal of “increasing understanding.” That goal can be interpreted to mean that external stakeholders should provide input to refine or expand internal stakeholders’ inquiries and level of knowledge about an issue. However, if that goal is interpreted to mean “educating the public,” then its implementation through a unidirectional flow of information easily can preclude active public *involvement* (Yosie and Herbst, 1998; Burke, 1968).
- Three elements lead us to assert that virtually every public involvement plan should be flexible so that mid-course adjustments may be made. First, public involvement goals can vary considerably. Second, there are no definitive or foolproof methods for achieving most public involvement goals (the major exception here is the minimal goal of “conducting public involvement,” where the process becomes the end in and of itself). Third, interactions among involved parties change over time, as parties deal with one another and as different kinds of information become available. Therefore, the public involvement process evolves over time (Finsterbusch and Wolf, 1981).
- Because public involvement surrounding many localized or regional issues occurs over a substantial period, it is important to remember that the process builds upon itself. Experiences with early public involvement influence later activities. Likewise, judgments about later public involvement activities (e.g., about their effectiveness, trustworthiness, or overall worth) are influenced by judgments about activities that already have been undertaken. Judgments made by both internal and external stakeholders about these shared experiences may differ; such judgments may affect how both sets of stakeholders proceed throughout the decision-making process (Lynn, 1987).

We then translated these five considerations into a form we thought would be useful and usable by NACC regional and sectoral assessment teams. Specifically, we divided the public involvement process into six steps. We recognized that these steps need not occur sequentially in real-world applications; some activities may occur simultaneously. Further, we recognized that real-world constraints could limit practitioners’ ability to implement all of the steps, or to implement them fully. The six steps are:

1. identifying goals,
2. identifying relevant stakeholders and publics,
3. identifying appropriate public involvement methods,
4. deciding how to use public involvement input,

5. recording public involvement efforts, and
6. evaluating the success of the public involvement.

In the following sections, we briefly discuss each step.

4.1. Identifying goals

Clearly identified goals underlie decisions about (a) which stakeholders and publics to involve, (b) which involvement methods to use, and (c) how to use resulting input. Goals also establish the basis for evaluating the success of public involvement programs either mid-course or post hoc.

NACC's institutional structure sets up an internal conflict with regard to public involvement goals. As one example, public involvement for the national NACC assessment is structured as a top-down enterprise; the regional public involvement is structured as bottom-up. These different structures may influence which groups are involved and, therefore, the perspectives and interests represented and the kind of information obtained. Further, structurally, a series of bottom-up public involvement efforts in multiple regions could lead to considerably different results, raising questions about consistency, comparability, and synthesis. NACC took steps to reduce or eliminate this conflict by explicitly acknowledging that the national synthesis cannot contain all information, and establishing reporting templates for the regions and sectors that promote consistency but allow flexibility. The extent to which these templates (a) are deemed useful by assessment teams at all three levels and (b) truly enable regional or sectoral differences to be identified remains to be seen.

NACC-established public involvement goals for different levels of assessment may place competing demands on those charged with implementing public involvement — both within and among assessment levels. Most goals are outcome-oriented; some are process-oriented. Within the regional level, for instance, cultivating and engaging regional stakeholder networks may be a continuing effort — a long-term process of both reaching out to external stakeholders and listening to them. This process may fail to produce short-term products, such as the identity of the most important regional issues to assess. Sporadic, relatively intensive campaigns to achieve short-term goals may circumvent the process of cultivating long-term relationships. This kind of conflict may be particularly pronounced if, for example, the external stakeholders or publics who identified their most important assessment issues are not contacted again until the draft assessment is completed.⁹

⁹ The goals themselves may not be mutually exclusive; strategies used to achieve goals may unintentionally create the conflicts. By explicitly considering public participation goals, and by planning strategies that consider the suite of goals, we think these kinds of conflicts may be reduced.

The public involvement goal structure is the foundation for subsequent public involvement activities because it establishes explicit and implicit expectations for how public involvement will be conducted (process) and how its results will be used (outcomes). The extent to which these expectations conflict, and the extent to which they are fulfilled, will influence the involvement process, its outcomes, and judgments of its success. Because of these elements, the adage about starting with the end in mind (or “holistic” or “systems” thinking) is essential to apply to compartmentalized, regional public involvement efforts.

4.2. Identifying relevant publics and stakeholders

The issues associated with identifying relevant stakeholders and publics for regional efforts are similar to those associated with localized efforts. However, the difference in scale exacerbates the issues, making them even more difficult to resolve, particularly when real-world time, resource, or other constraints enter the picture.

No matter what its organizers might have wanted, or what might be ideal, NACC public involvement unfolded in response to pressures from within the program. Regional assessment teams in the first year were directed to organize a regional workshop. Faced with doing so on rather short notice, given the time between the receipt of federal agency funding and the workshop dates, the organizers — usually located in regional universities — called upon existing contact networks with stakeholders in sectors to be emphasized in that region. As regional experts on climate change issues, the local organizers worked with candidate participants to increase their knowledge of the issues, did their best to explain the process, and cajoled and persuaded busy people to make time in their lives for the workshop and follow-up activities. The result was that a substantial number of individuals participated in each of the regional workshops. The general guidance national assessment leaders provided to workshop organizers was to take care to avoid treating participants as “students” to be tutored, instead to treat them as equals and let them talk first.

Clearly, in every case the participants did not constitute a random, purposive, or other systematic sample of the general population in the region. Participants came from limited geographic segments of the regions, generally in proximity to the home locations of the organizers. Organizers tended to draw participants from a relatively small cross section of sectors of possible interest, sometimes related to their own subject-matter interests. Typically, participants already were part of the organizers’ (typically university professors or the equivalent) contact networks and thus not necessarily representative of the broader population. Gender and racial diversity was lacking; issues from the perspectives of the poor and powerless were not voiced; and, except for the Native Lands and Peoples assessment, issues raised were associated with social and cultural perspectives rather than economic ones.

The first “guinea pig” workshop in the Central Great Plains (covering Colorado east of the Rockies, Nebraska, Kansas, and Wyoming), held in and near Fort Collins, CO, illustrates these points. Participants were largely farmers and ranchers, or people associated with those occupations. With the exception of one person from Wyoming, all were drawn from Colorado and Nebraska, the organizers’ home states. Participants were part of the agricultural extension network, with the long-established practice of relying on that network for technical information (including previous summaries of climate change issues). The group of participants was relatively homogeneous with regard to gender, race, and socioeconomic status.

4.3. Identifying appropriate public involvement methods

A wide array of methods can be used in public involvement, ranging from those that provide information (without seeking input), to town hall-type processes, to formal referenda. While the same methods applied at localized scales can be used or adapted at regional scales, empirical research is necessary to determine whether — or the extent to which — those methods are effective at a larger scale.

4.3.1. Leadership

No public involvement method is foolproof. In part, success depends on the ways in which involvement methods are implemented. In this regard, leadership appears to be key to successful implementation. Leadership — perhaps by a single individual — may be an essential ingredient in promoting trust among stakeholder groups and resolving conflict (US EPA, 1997). Despite well-laid plans, an explicit working procedure, and the best intentions, ineffective leadership may cause failures in public involvement efforts.

In regional public involvement efforts like NACC, complex networks of responsibility may make it difficult for strong leadership to emerge. For instance, the NACC National Synthesis Team oversees the activities of both regional and sectoral assessment teams. Regional and sectoral assessment teams, in turn, lead smaller-scale public involvement activities. The layers of authority and responsibility may make it difficult to communicate the structure of the overall effort clearly, how the different layers should interact, or who is in charge.

4.3.2. Active involvement

A tremendous challenge for nebulous substantive topics like climate change variability is selecting methods that promote and actually obtain *active* stakeholder involvement (assuming that is desired), or *any* kind of involvement (Wilson, 1997). Climate change variability may be among the intangible problems that typically are viewed as (a) not urgent, (b) removed from local decisions or actions, or (c) both. As one example, in 1995, EPA held a series of workshops to determine options for evaluating regional vulnerabilities to climate

change in the Southeast. Only 50 invitees out of 200 attended the workshop specifically focusing on constituency groups (i.e., stakeholders). Nonattendees indicated that they did not “do” climate change, they did not see climate change as a problem, they thought reasonable adaptive measures already were being taken, or that they faced funding or time constraints (Turner et al., 1996; O’Hara et al., 1995).

There are no clear methods for successfully obtaining involvement from individuals or groups reluctant to get involved. Some suggest that funding targeted groups (e.g., environmental and other special interest groups) may increase the likelihood of their involvement (Keating et al., 1999). Others who seem to adopt an “if they only knew” mentality maintain that education and awareness raising will promote involvement (Evans and Durant, 1995; Steelman and Ascher, 1997). Another suggestion is to use methods that appeal to peoples’ desire not to be excluded from a policy development process that may affect them (Johnson, 1998).

4.4. Deciding how to use public involvement input within the assessment

Receiving information from participants should be a starting point, not an end point, for most public involvement efforts. While it is important to know how public involvement input will be used in general, it also is critical to determine how to use — or sort through — the diversity of input that may be obtained (Hazardous Waste Dialogue Group, 1983). In virtually any elicitation process (even in closed-ended survey questions), one can expect variation. That variation can pertain to the range of issues raised, to the relative importance placed on different issues, or to ideas about what outcomes are “good.” For example, some essential questions that NACC regional assessment teams may face include:

- How should input from different jurisdictions within a region or from rural versus urban areas be weighed? Different issues and concerns may be raised in the different areas. More people may provide input from an urban area than from rural areas, so do the numbers of responses matter more or less than the content of the responses (Arcury and Christianson, 1993)?
- How should input from people with scientific or technical expertise about climate change be weighed relative to people whose expertise lies in other arenas? If the assessment is developed solely from a scientific/technical perspective, to answer scientific and technical questions, then there seems little point in seeking input from a nonscientific/nontechnical perspective (Stern and Fineberg, 1996; National Research Council, 1989). However, when used in scoping activities, nonscientific/nontechnical perspectives may help to reframe assessment questions. As an example, stakeholders from the Central Great Plains (mainly farmers and ranchers) disagreed with

NACC scientists about the most important issues. They were less concerned with average temperature and precipitation changes than with forecasts of increased variability in climate (which might make precision farming and ranching more risky) and the potential for new pests and pathogens arising under different ecological conditions. Their perspectives transformed the regional assessment in several important ways.

- What criteria should be used for selecting or rejecting input? As with the other questions, the ways in which this question is answered can influence perceptions of the legitimacy of the public involvement process and acceptance of the assessment itself (Beck and Davidson, 1993; Steelman and Ascher, 1997; Rosener, 1982). In assessments, like any other study, choices regularly are made about which information to use. When public involvement is part of the assessment process, some of those choices likely should revolve around (a) commitments made to stakeholders and publics and (b) public involvement goals (e.g., seeking, but disregarding, input may undermine trust and credibility). In the Middle Atlantic regional assessments, as well as others, public involvement input was used even though it directed attention away from quantitative forecasts and issues dealing only with climate change. Participants urged NACC scientists to consider response strategies that may be attractive for reasons other than climate change, alone, and to focus on information and communication styles that are useful as well as scientifically valid.

4.5. *Evaluating the success of public involvement activities*

Evaluation is crucial for determining the success of public involvement efforts, and, perhaps more importantly, for improving the process as it unfolds (Sewell and Phillips, 1979). Evaluation issues pertinent to public involvement at localized and regional scales overlap. However, questions about *whose* definitions and measures of success are exacerbated at a regional scale, particularly when there are multiple teams and levels of responsibility.

It is essential to know the purpose for which the evaluation is occurring. For NACC, we suggest that a purpose is to determine the extent to which public involvement goals have been achieved. Achieving this evaluation goal requires an ability to distinguish “success” from “failure” in attaining public involvement goals — measures must be established. These measures can be binary (achieved vs. did not achieve) or graduated (e.g., not at all, somewhat, mostly, entirely), qualitative or quantitative. The data required for some measures sometimes may best — or only — be collected during the course of public involvement, not after. Therefore, it is important to establish the evaluation framework (what is to be evaluated and what data are needed to make the evaluation) *at the beginning* of public involvement efforts (Yosie and Herbst, 1998).

Definitions of “success” and the criteria for gauging it can vary considerably within and among stakeholder groups. To some extent, these differences can be traced back to goal definition and preferences for such process-oriented goals as assuring that stakeholder input is used in the assessment versus such outcome-oriented goals as identifying previously unconsidered vulnerabilities to climate change. Measures of success for each of these goals would be considerably different; evaluation data relevant to either goal would be of little, if any, use for the other goal. Further, establishing evaluation protocols may require clarifying some of the ambiguity evident in goal statements (Rosener, 1981). Using the examples in this paragraph, evaluation measures could specify what “used in the assessment” means. Some possible interpretations are (a) summarized in an appendix; (b) summarized in the main text; and (c) demonstrably and explicitly changed what is assessed or how it is to be assessed.

It is possible to have “successful” stakeholder involvement that does not produce a “successful” assessment. For example, the Global Environmental Assessment (GEA) Project points out that, conventionally assessments have been considered successful if they reduce technical uncertainties, reduce gaps in the data, and successfully influence policy decisions (Global Environmental Assessment Project, 1997). Public involvement that succeeds in fulfilling its goals of, for example, enhancing awareness, setting a future research agenda, and obtaining input for assessment goals would not necessarily lead to a successful assessment, according to the conventional perspective.

5. Discussion

Our guidelines were distributed to all regional and sectoral workshop and assessment teams. However, the extent to which they actually were used is unclear. We have anecdotal indications that the guidelines were widely used to assure that teams were not overlooking issues that might be of concern to them later. Although we recommended that assessment leaders carefully document their public involvement efforts, we have no information about whether that recommendation was adopted. There has been no systematic effort by the National Assessment Coordination Office (NACO) to collect such documentation. However, NACO did survey the regional and sectoral teams to determine how many participants had been involved; NACO repeatedly has reported a resulting total number of more than 2000. How “participation” was defined in such number counts is unclear.

We were unable to organize and carry out a comprehensive evaluation of the public involvement component of NACC. To date, the only attempt to begin such a lessons-learned exercise was a conference organized by Harvard’s Global Environmental Assessment Program in 1999 that drew on a variety of international environmental assessment experiences, including NACC. Assessment teams also have been invited to describe cases, if any, where public involvement informed the framing of assessments, was used for reviewing assessment reports, and contrib-

uted to the actual assessment process itself. These informally reported cases include situations where stakeholder input during the assessment affected the evaluation of processes and data (especially determinations of the relative importance of process elements or relationships), identified additional data sources, influenced the interpretation of results, and improved the communication of results.

It is unclear how public involvement will be incorporated in national climate change assessments and associated analysis and assessment infrastructures in the future. Clearly, the NACC experience has caused federal agencies to rethink the feasibility and importance of such a practice; from a tendency to be skeptical, even negative at the outset, many agencies have become strong supporters. Members of the Office of Global Programs at the National Oceanic and Atmospheric Administration say they no longer use “stakeholder” terminology, instead preferring the less condescending term “nonconventional investigators.”

A challenge remains, however, in delivering on the promises to participants in the early stages of NACC public involvement — that they will have the opportunity to continue to be a part of a much longer-term process. For now, the federal agency support that enabled the regional and sectoral assessments has been exhausted. In its new 10-year plan, the US Global Research Program has identified “regional test beds” as one of the key program components related to a new emphasis on climate change impact vulnerability and resilience. This emphasis may lead to the establishment of a number of regional centers for climate change impact analysis. As this new institutional structure evolves, the role of public participation likely will be a central issue.

Should these regional centers form, it would be enormously helpful to be able to build on an evaluation of the NACC public involvement experience. NACC has provided over 20 natural experiments with public involvement in regional, sectoral, and national assessments — all related to the same central issue, conducted over more or less the same time period, built from the same base of scientific information. These natural experiments provide a unique opportunity for learning, one that it would be tragic to miss.

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