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GM Foods: Potential Public Consultation and Participation Mechanisms

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GM FOODS: POTENTIAL PUBLIC CONSULTATION AND PARTICIPATION MECHANISMS

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ABSTRACT: One direct mechanism for improving public confidence in genetically modified foods may be to provide a greater role for the public in making policy decisions about such products. There are compelling normative and practical reasons for involving the public in such decisions. Yet, effective and meaningful public participation is made difficult by several factors, most importantly the lack of knowledge by most members of the public about scientific subjects, including biotechnology. A number of mechanisms for public participation exist, but most suffer from one of two principal limitations. Either they provide for only a small number of participants, usually representatives of interest groups, or they provide for widespread public participation but have no means for ensuring that the public input is informed. The recently completed national debate on GM foods in the United Kingdom illustrates many of the difficulties in providing for informed and effective public participation. New innovative approaches, such as on-line deliberations, are needed to achieve the goal of meaningful public participation in science-based policy decisions about genetically modified foods.

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Public opinion is critical to the acceptance of genetically modified (GM) foods.[1] When it comes to food, the consumer is king, even when consumer

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1. *See* Michael Siegrist, *The Influence of Trust and Perceptions of Risks and Benefits on the Acceptance of Gene Technology*, 20 RISK ANALYSIS 195, 195 (2000); Mark Cantley et al.,

opinion may not be scientifically defensible. If the public is suspicious of GM foods, they will not buy them, and food processors and manufacturers will be forced to exclude GM ingredients from their products.[2] Farmers will, in turn, be forced to grow exclusively non-GM crops to ensure that they can sell their harvest.

Given the critical role of the consumer in determining the acceptability of GM foods, one obvious opportunity for confidence building is initiatives that involve the public more directly in decisions about GM foods.[3] There has been increasing emphasis in recent years on mechanisms for involving or consulting the public in the resolution of policy controversies with a significant scientific or technological component.[4] Such science-laden policy disputes present a special challenge to democratic and deliberative theory because the resolution of these disputes generally requires scientific and technological knowledge that is often beyond the grasp of average citizens.[5] Innovative strategies are required to involve the public in these disputes, which otherwise tend to be dominated by experts, without sacrificing the specialized knowledge that expertise brings to the table.

Regulations and Consumer Attitudes Toward Biotechnology, 17 NATURE BIOTECH. BV37, BV37–38 (Supp. 1999).

2. For example, an executive of the Canadian food processing giant McCain Foods admitted that his company's announcement in 1999 that it would no longer buy genetically modified potatoes was not based on any scientific concerns about the safety of GM foods but was "a response to consumer, market demand." He said that three of his company's customers buy 45% of the french fries sold in the world, and when they express nervousness about consumer reaction to GM, food processors such as McCain "have to listen." Barry Wilson, *Consumers Rule—Even If They're Wrong*, W. PRODUCER, Dec. 13, 2001, *available at* http://www.producer.com/articles/20011213/news/20011213news15a.html. *See also Nick Heather: Building Consumer Confidence*, 2 AGBIOTECH BUZZ, Aug. 28, 2002 (quoting the Director of Product Safety at Gerber Products Company as stating that the company sought to avoid using GM crops in its products not because of any safety concerns, but because of "consumer perceptions that might affect confidence in the company"), *available at* http://pewagbiotech.org/buzz/display.php3?StoryID=74.

3. *See* Thérèse Leroux et al., *An Overview of Public Consultation Mechanisms Developed to Address the Ethical and Social Issues Raised by Biotechnology*, 21 J. CONSUMER POL'Y 445 (1998) ("[T]he expansion of biotechnology ultimately depends on its acceptance by the public; hence the importance of taking into consideration the reactions of the public to these scientific developments.").

4. *See* GAIL CHARNLEY, DEMOCRATIC SCIENCE: ENHANCING THE ROLE OF SCIENCE IN STAKEHOLDER-BASED RISK MANAGEMENT DECISION-MAKING 4 (2000), *available at* http://www.epa.gov/sab/pdf/scistakape.pdf (last visited Oct. 28, 2003):

> More and more risk management decisions are developed and implemented using collaborative processes involving consultation and cooperation among stakeholders, including regulators, regulated parties, advocacy-based organizations, and the general public. This trend constitutes a move away from the unilateral, technocratic, regulatory model of risk management decision-making toward more inclusive, democratic, non-regulatory processes, reflecting the democratic ideal that people should be involved in their own governance.

5. *See* Thomas Dietz, *Preface: Democracy and Science* to FAIRNESS AND COMPETENCE IN CITIZEN PARTICIPATION xvii, xix (Ortwin Renn et al. eds., 1995) (observing that "traditional democratic processes seem to falter" on technology policy issues); Daniel J. Fiorino, *Citizen Participation and Environmental Risk: A Survey of Institutional Mechanisms*, 15 SCI. TECH. & HUM. VALUES 226, 229 (1990); Frank N. Laird, *Participatory Analysis, Democracy, and Technological Decision Making*, 18 SCI. TECH. & HUM. VALUES 341, 341 (1993).

Potential mechanisms for public participation in science-laden policy controversies vary in their emphasis and objective, ranging from initiatives that are primarily educational in focus to processes that are more deliberative or even decisional.[6] While promoting greater public participation is a popular mantra with which few disagree, providing mechanisms for fair, informed, and meaningful public participation is difficult to achieve. An enormous amount of scholarly analysis and practical experimentation in exploring innovative mechanisms for public participation has been undertaken, especially for public policy controversies with a substantial scientific and technological component. While no "magic bullets" have been discovered that can guarantee effective public participation, significant progress has been made in understanding the potential, the limitations, and the complexities of various public participation mechanisms.

This paper will provide a critical overview of potential mechanisms for increasing public participation with regard to GM foods and suggest some promising new directions and perspectives for the future. Part I summarizes the case for public participation in science-laden policy controversies. Part II describes the principal challenges and limitations in providing for informed and meaningful public participation. Part III surveys existing mechanisms for public participation and assesses their value in light of the challenges and limitations described in the previous section. An ambitious recent initiative to involve the general public in the decision-making process for GM foods in the United Kingdom is described and evaluated in Part IV. Finally, Part V describes some promising new directions for potential public participation and consultation regarding GM foods.

I. THE CASE FOR PUBLIC PARTICIPATION

Why bother with the Sisyphean task of enabling public participation in discourse about complicated scientific issues? One might be tempted to assume that the small part of the public that pays any attention is easily misled by generalizations and worst case scenarios and, in consequence, forms unsubstantiated opinions that retard rather than advance the quality of the discourse. The need for systematic attention to detail and subtlety challenges well-trained professionals; it is surely unreasonable to expect a lay audience to marshal the appropriate substantive background and reasoning skills to grasp, let alone contribute to, ongoing science-laden policy controversies. Perhaps the best we can hope for is a benign paternalism that spoonfeeds the public a dumbed-down version of solutions achieved by qualified scientists after the fact of their achievement. Or is this description unfairly pessimistic, reinforcing overly broad

6. Public participation has been defined as "forums for exchange that are organized for the purpose of facilitating communication between government, citizens, stakeholders and interest groups, and businesses regarding a specific decision or problems." Ortwin Renn et al., *A Need for Discourse on Citizen Participation, in* FAIRNESS AND COMPETENCE IN CITIZEN PARTICIPATION 1, 2 (Ortwin Renn et al. eds., 1995).

stereotypes and thereby exacerbating a serious problem by mocking the prospect of improvements?

The difficulty of enabling public participation is conceded as a premise.[7] The question then is, given these difficulties, should we bother with public participation? The affirmative answer arises from two justificatory prongs. The first prong recognizes the inevitability of science's dependence upon nonscientific values.[8] The second prong invokes the special obligations that pertain in a democratic political order.

Within the first prong, there are several instrumental reasons for recommending continuing efforts to promote public participation. First, public participation facilitates policy implementation. The process of participation, aside from its actual impact on outcomes, promotes public endorsement of those outcomes.[9] Widely inclusive participation declares an enlarged circle of involved parties, encourages the acceptance of scientific findings, and enables the voluntary modification of public practice to accommodate the insights of that research. Involved parties are more likely to identify as stakeholders and adjust their behavior to serve their newly informed judgments.[10]

To make persuasive progress with the public on an issue, scientific or otherwise, requires a foundation of trust; familiarity with the premises and priorities of scientific research fosters trust. Indeed, disclosure as a social policy, mandating the standardized disclosure of factual information to the public in a digestible form, is an important element of increasing a well-founded public

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7. *See infra* Part II.

8. It is a now hackneyed insight that science is value laden. Nigeria would no doubt pursue a different scientific research agenda than would Canada. A commitment to explore space will focus scientific energies and resources differently than a commitment to probe the genome or develop biological or chemical weaponry. Misogyny, racism, or colonialism will affect the formation of hypotheses and the evaluation of observations. Science does not exist apart from its scientists, and humans are ineluctably affected by the acculturated lens through which they observe and with which they order their observations. These insights are deflationary; they suggest caution in the face of temptations to identify science as objective truth.

9. *See, e.g.*, Joseph L. Arvai, *Using Risk Communication to Disclose the Outcome of a Participatory Decision-Making Process: Effects on the Perceived Acceptability of Risk-Policy Decisions*, 23 RISK ANALYSIS 281 (2003) (providing experimental evidence that the public is more inclined to accept a risk-based decision when explicitly told that a public participation process was included in the decision-making process than when it is not); Ambuj Sagar et al., *The Tragedy of the Commoners: Biotechnology and Its Publics*, 18 NATURE BIOTECH. 2, 4 (2000) ("Institutions such as the biotechnology industry and government agencies stand to gain greater acceptance only by soliciting public input, implementing policies in a transparent and democratically representative fashion, and demonstrating their responsiveness to concerns raised by scientific experts, other organizations, and citizens and consumers around the world.").

10. *See* PRESIDENTIAL/CONG. COMM'N ON RISK ASSESSMENT AND RISK MGMT., FRAMEWORK FOR ENVIRONMENTAL HEALTH RISK MANAGEMENT 17 (1997) [hereinafter RISK COMMISSION] ("Experience increasingly shows that risk management decisions that are made in collaboration with stakeholders are more effective and more durable."), *available at* http://riskworld.com/Nreports/1997/risk-rpt/pdf/EPAJAN.pdf (last visited Oct. 28, 2003).

confidence.[11] Participation helps resolve conflicts and confusion in the statement of policy and encourages broader acceptance of policy implementation. Without participation, public practice may resist the import of scientific recommendations, however obvious (to scientists) their benefits.

A second instrumental reason is that participation is a means of informing and improving scientific and other relevant knowledge. Scientists would not expect lay persons to suggest methodological laboratory improvements, but they can help steer the direction of research. Important facts can be neglected in the rarified air of the laboratory or academy. Narrowly focused facts may overwhelm legitimate counterbalancing considerations perforce of their scientific pedigree. The claim is that public participation leads to objectively superior decisions. This is particularly true in the case of stakeholders who are easily motivated to contribute to the development of ingenious solutions. In the context of environmental decisions, many studies conclude that "more intensive forms of stakeholder involvement are more likely to produce higher-quality decisions."[12] These decisions do not ignore relevant scientific information. Rather, they appropriately utilize the available technical resources and they contribute new information to the process.

The public can bring to bear valuable information, alternative understandings, and creative thinking in solving particular problems.[13] Not the least of these contributions is a reluctance to evaluate proposals solely on economic terms (as a reductionistic cost-benefit analysis), but to introduce ethical considerations as well.[14] This claim is particularly relevant with applied science, where the purpose is to study a matter of practical concern and generate recommendations that have genuine prospects for implementation.

The second prong of the argument for public participation is normative rather than instrumental. The special commitments of a democratic order explain why public participation is crucially important to scientific endeavor within democracies, regardless of the disinclinations or ineptitudes of particular publics. If the people are the source of political legitimacy, then they are the preferred source of impetus for change.[15] Of course, the public rarely speaks with a single voice about anything. There are no pure democracies because it is impossible to

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11. MARY GRAHAM, DEMOCRACY BY DISCLOSURE: THE RISE OF TECHNOPOPULISM 138–39 (2002).

12. Thomas C. Beierle, *The Quality of Stakeholder-Based Decisions*, 22 RISK ANALYSIS 739, 747 (2002).

13. *See* COMM. ON RISK CHARACTERIZATION, NAT'L RESEARCH COUNCIL, UNDERSTANDING RISK: INFORMING DECISIONS IN A DEMOCRATIC SOCIETY 78–79 (Paul C. Stern & Harvey V. Fineberg eds., 1996) ("Many decisions can be better informed and their information base can be more credible if the interested and affected parties are appropriately and effectively involved in deliberation."); RISK COMMISSION, *supra* note 10, at 17 ("Stakeholders bring to the table important information, knowledge, expertise, and insights for crafting workable solutions.").

14. Fiorino, *supra* note 5, at 227 ("Studies of lay judgments about technological hazards reveal sensitivity to social and political values that experts' models would not acknowledge.").

15. *Id.* at 227 ("The normative argument accepts, as an ethical presupposition, that citizens are the best judge of their own interests.").

gather all of a nation's citizens in one place and devise procedures to assure that all of these citizens are comparably prepared to deliberate and decide the nation's business. The history of political philosophy abounds with shrill criticism of pure democracy. Plato and Aristotle both thought that the rabble would succumb to sophistic oratory and pursue short-term follies. This ease with which the fleeting passions of an uninformed public could be manipulated was a persuasive argument that aristocratic alternatives were preferable. (Identifying and selecting the appropriate elite has proved an elusive task.)

The Founding Fathers of the United States were divided by competing notions of how their proposed democracy should operate. The Federalists sought to refine the public will with a policy of "successive filtrations."[16] Representative government serves this function, as does a Senate elected by state legislatures and thus only indirectly elected by the people. Anti-Federalists sought more direct connections to the people, supporting shorter terms for elected officials and frequent referenda. The bone of contention here is whether the public will is best expressed directly or via intermediary conduits. Direct expression claims the democratic high ground; let the people decide here and now, each citizen's vote counting the same.

The reservations about direct democracy are two-fold. First, many errors arise in the immediacy of the present. The ancient worry was that an aroused rabble might destabilize a polity under the sway of a deviously effective orator (or, in a modern setting, a flood of inflammatory propaganda or the comprehensive suppression of alternative thought and expression). A second reservation doubted that all issues were best resolved by a counting of hands. Complex issues often require balancing and trade-offs and are badly served when simplistic summaries are drafted to influence voters. Other issues are not suited to balloting at all. Issues of fact are not verified or refuted by force of a majority vote. The influence of facts upon policy is a political judgment, but the verity of facts is not a function of their popularity.

These concerns about the directness of democratic expression have not been resolved. We live in an age when public referenda have been alternately praised and savaged as a means to constrain the powers of (merely) representative government. Single issue campaigns, waged by parties and political action committees, have often forced candidates to hew closely to an openly declared position and reduced politics to duels of simplistic slogans where only a few hot button issues obtain regular scrutiny.

Older criticisms of democracy noted the contrast between a fleeting opinion inflamed by oratory or passion and a considered opinion reached after reflection and analysis. Recent controversies in democracy theory point to the manipulative features of various purportedly democratic practices. According to this view, a form of detached pluralism, democratic practices are essentially contests among opposed interests. Government arbitrates among different interests within the

16. JAMES S. FISHKIN, THE VOICE OF THE PEOPLE: PUBLIC OPINION AND DEMOCRACY 57 (1995).

public. What is good for that public is contingent, the result of negotiation among those interests. Pursuit of a comprehensive inclusion of multiple interests is forsaken. Instead one devises strategies to advance one's interests regardless of the value of competing interests. For example, referenda may express the preferences of a particular electorate at a particular time and therefore seem a true expression of majority rule. On the other hand, the results of referenda may bind duly elected officials against the fulfillment of their duties because they do not have the flexibility to respond to significantly changed circumstances. Indeed, referenda may poorly capture the preferences of an electorate who after the fact of their vote concede that they did not intend to impose severe constraints upon solution sets for unforseen, later developing problems. Moreover, the electorate that passes the referendum imposes constraints on a later and different electorate.

These problems may be evidence that democracies are failing to perform their intended functions, in which case a normative concern for including scientific inquiries among the subjects vying for consideration in a democratic order would be misplaced. On the other hand, the problems may be evidence of the vibrancy of democratic theory and practice. A recognition of the shortcomings of particular democratic practices is not proof of the failure of democratic practice generally, but rather is evidence that democratic participation remains a priority, however problematic its exact configuration in changing societies. Contests about the appropriate form for democratic practice testify to the importance of those forms and to a broadening recognition of its importance. Even as we continue to debate the protections appropriate to particular rights, so too do we debate the vitality of particular democratic practices.

An important development in political theory in the last decade has been an elaboration of deliberative democracy as the necessary form of a truly democratic order.[17] According to this view, the formality of holding regular elections is insufficient for a democratic order. Instead, there must be ample and robust discussion among the electorate before each election to enable an informed and consultative vote. It is not enough to cast a ballot. One must have a real opportunity to inform oneself about the issues and candidates and engage in unfettered discussion with other citizens similarly situated. Instead of presuming that an isolated individual holds and knows clearly his fixed preferences, deliberative democracy builds upon an alternative model of personality in which individuals change their preferences over time as they mature and as they interact with other individuals.[18] The goal of an informed electorate consulting with itself

17. *See* THOMAS CHRISTIANO, THE RULE OF THE MANY: FUNDAMENTAL ISSUES IN DEMOCRATIC THEORY (1996).

18. *See* THOMAS C. BEIERLE & JERRY CRAWFORD, DEMOCRACY IN PRACTICE: PUBLIC PARTICIPATION IN ENVIRONMENTAL DECISIONS 64 (2002) ("This 'popular' democratic theory stresses the importance of the act of participation not only in influencing decisions but also in strengthening civic capacity and social capital. Like pluralism, popular democracy emphasizes interaction among adversarial interests, but that interaction is viewed less as a competitive negotiation than as a way to identify the common good and subsequently act on shared common communal (versus individual) goals.").

is an ever changing target because members of that electorate continually grow and alter their preferences. This is a dynamic model of an evolving community, and it presents an ideal by which to measure the quality of particular polities. With this model, we can easily include scientific and technological controversies as a legitimate focus for public deliberation. The model is not periodic referenda on scientific proposals, but rather the promotion of informed discussion of these proposals. A voting console by each television set does not assure an improved democracy, but merely more occasions to vote. With the model of deliberative democracy, we can make normative claims about the public's need to engage with scientific endeavors because ideally everything that affects a polity's future should be included among its internal deliberations.

II. THE PROBLEMS AND LIMITATIONS OF PUBLIC PARTICIPATION PROCESSES

While involving the public in decision making on science-laden policy controversies is compelling in principle, in practice there are many obstacles and complexities in ensuring fair, meaningful, and effective public participation. Many commentators frame these issues as a tension between "fairness" and "competency," where fairness refers to broad representation and equalization of power, and competency refers to the technical capability of the participants and process.[19]

A. Competency: The Achilles Heel of Public Participation

Public policy on important societal issues obviously needs to be properly informed with the underlying facts, knowledge, and uncertainties.[20] Yet, on most science-laden policy issues, the majority of the public is woefully ignorant of the subject, whether measured by their own self-assessments or by more objective evaluations employing questionnaires or surveys.[21] As one group of commentators recently lamented:

> At the heart of the technological society that characterizes the United States lies an unacknowledged paradox. Although the nation increasingly depends on technology and is adopting new technologies at a breathtaking pace, its citizens

19. Beierle, *supra* note 12, at 740–41; Thomas Webler, *"Right" Discourse in Citizen Participation: An Evaluative Yardstick, in* FAIRNESS AND COMPETENCE IN CITIZEN PARTICIPATION 35, 38–39 (Ortwin Renn et al. eds., 1995); Julia Abelson et al., *Deliberations About Deliberative Methods: Issues in the Design and Evaluation of Public Participation Processes*, 57 SOC. SCI. & MED. 239, 244 (2003); Judith Petts, *Evaluating the Effectiveness of Deliberative Processes: Waste Management Case-studies*, 44 J. ENVTL. PLAN. & MGMT. 207, 208–09 (2001).

20. *See* Frank B. Cross, *The Public Role in Risk Control*, 24 ENVTL. L. 887, 903 (1994) ("There is no reason to believe that even an innumerate public wants government to base decisions upon the innumerate miscomprehension or sciolism of those who have drank too shallow of the Pierian Spring.").

21. *See id.* at 892 ("[P]ublic risk estimates may be condemned as inaccurate, irrational, or even ignorant.").

are not equipped to make well-considered decisions or to think critically about technology.[22]

Similarly, the "major finding" of the National Science Foundation's (NSF's) most recent survey of public understanding of science and technology is that "Americans are highly supportive of science and technology (S&T), but lack knowledge of them."[23]

The widespread lack of scientific knowledge on the part of the general public is demonstrated by surveys that ask citizens a series of questions about basic scientific terms and concepts. For example, the most recent NSF survey found that less than half of the population (48%) knew that electrons are smaller than atoms or that the earliest humans did not live at the same time as the dinosaurs.[24] Moreover, in open-ended rather than multiple-choice questions, only 22% of respondents provided an acceptable definition of "molecule," and only 45% could define "DNA."[25] Another disturbing finding is that less than half the population reportedly realizes that the earth goes around the sun once a year.[26]

Most members of the public are aware of their limited knowledge of science and technology issues. The NSF survey of public understanding of science found that less than 15% of Americans believe they are "very well informed" about science and technology, while approximately 30% consider themselves "poorly informed."[27] The survey also found that in the period from 1997 to 2001, the percentage of the general population who felt that they were poorly informed about science and technology grew rather than diminished, notwithstanding the ever-increasing importance of science and technology in today's society.[28]

The NSF survey defined the "attentive public" for any particular issue as those who express a high level of interest in the issue, feel very well informed about it, and read stories in a newspaper or magazine about the issue.[29] The survey found that for most of the science and technology issues included in the NSF study, less than 10% of the public could be considered "attentive."[30]

On the specific subject of GM foods, there is also considerable evidence of a substantial lack of public knowledge about the nature, risks, and benefits of GM foods.[31] Much of the data comes from individuals' self-assessment of their own

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22. A. Thomas Young et al., *Improving Technological Literacy*, ISSUES SCI. & TECH., Summer 2002, at 73, 73.

23. NAT'L SCI. BD., NAT'L SCI. FOUND., SCIENCE AND ENGINEERING INDICATORS—2002, at 7–4 (2002) [hereinafter NSB].

24. *Id.* at A7–10.

25. *Id.*

26. *See* H.W. LEWIS, TECHNOLOGICAL RISK 43–44 (1990).

27. NSB, *supra* note 23, at 7–8.

28. *Id.*

29. *Id.* at 7–9.

30. *Id.*

31. *But see* Claire Marris, *Public Views on GMOs: Deconstructing the Myths*, 2 EMBO REP. 545, 546 (2001) (arguing that while most of the public lacks adequate knowledge of GM foods, this lack of knowledge is generally not relevant to the public's perception of GM foods, which likely would not be affected by additional knowledge). *See also infra* note 50 and accompanying text.

knowledge. A review of the available polling data by the NSF found that approximately 70% of the public consider themselves "not very well informed" or "not informed at all" about biotechnology.[32] In one study, 40.4% of respondents indicated that they had "no knowledge" about GM food, while only 2.9% claimed that they were "very knowledgeable."[33] In another study which asked how much members of the public knew about GM foods, 81% of respondents said they knew "a little" (36%), "nothing" (11%), or were not even aware of GM foods (34%), while only 4% claimed they knew "a lot" about GM foods.[34]

The public also demonstrates its general lack of knowledge when given pop quiz questions on basic biotechnological facts. For example, one question asked whether the following statement is true or false: "Ordinary tomatoes do not contain genes, while genetically modified tomatoes do." Only 44% of Americans (and 40% of Europeans) know that this statement is false.[35] Another study that asked the same question but substituted corn for tomatoes found that only 33 percent of the respondents recognized that the statement was false.[36] Another poll asked consumers whether there are foods produced through biotechnology in the supermarket now, and only 36 percent correctly answered "yes."[37]

Lacking basic knowledge about scientific issues and practices, the public is prone to being misled by unreliable information. In the words of one science journalist, "[w]ithout a grasp of scientific ways of thinking, the average person cannot tell the difference between science based on real data and something that resembles science—at least in their eyes—but is based on uncontrolled experiments, anecdotal evidence, and passionate assertions."[38] Concerns have been expressed that decision-making processes which lean toward greater participation by nonexpert stakeholders result in decisions that are not consistent with scientific knowledge.[39] Moreover, members of the public will be deterred from participating in deliberations on highly technical problems if they believe they lack sufficient knowledge to participate effectively.[40]

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32. NSB, *supra* note 23, at 7–16.

33. Jayson L. Lusk & Patrick Sullivan, *Consumer Acceptance of Genetically Modified Foods*, FOOD TECH., Oct. 2002, at 32, 35.

34. James Shanahan et al., *Attitudes About Agricultural Biotechnology and Genetically Modified Organisms*, 65 PUB. OPINION Q. 267, 274 (2001).

35. NSB, *supra* note 23, at 7–21, 22.

36. Lusk & Sullivan, *supra* note 33, at 35.

37. Shanahan et al., *supra* note 34, at 275.

38. Boyce Rensberger, *The Nature of Evidence*, 289 SCIENCE 61 (2000).

39. *See, e.g.*, TERRY F. YOSIE & TIMOTHY D. HERBST, USING STAKEHOLDER PROCESSES IN ENVIRONMENTAL DECISIONMAKING: AN EVALUATION OF LESSONS LEARNED, KEY ISSUES, AND FUTURE CHALLENGES (1998), *available at* http://www.gdrc.org/decision/nr98ab01.pdf (last visited Oct. 29, 2003); Peter T. Allen, *Public Participation in Resolving Environmental Disputes and the Problem of Representativeness*, 9 RISK: HEALTH, SAFETY & ENV'T 297, 303–04 (1998); Cross, *supra* note 20. *But see* CHARNLEY, *supra* note 4, at 2 (concluding that "scientific integrity is maintained and its credibility is assured when stakeholders are involved in deciding how science is used to answer their questions and in obtaining the scientific information needed to answer those questions").

40. *See* Laird, *supra* note 5, at 353; *see also* Sheila Jasanoff, *Technologies of Humility: Citizen Participation in Governing Science*, 41 MINERVA 223, 239 (2003) ("Expert analytical frameworks

An additional complexity relating to public understanding of scientific and technical issues is that public ignorance or invalid assumptions are often intertwined with otherwise valid social, cultural, ethical, or political values.[41] "An important truism of social psychology is that people respond not to some objective reality but to their own subjective interpretations or definitions of that reality."[42] It is now well established that the public's perception of risks is not based solely on objective attributes such as the probability and magnitude of harm. Other, more subjective factors such as dread, voluntariness, familiarity, and fairness also affect whether the public considers a particular risk to be acceptable or not.[43] When such concerns are based on supportable factual premises and assumptions, they need to be taken into account, but when based on invalid assumptions, they make a much more tenuous claim.[44]

For example, with respect to GM foods, many consumers are concerned that such foods are not "natural."[45] This view may be based on the invalid assumption that all non-GM foods are "natural," whereas in fact almost all foods have been manipulated and modified by humans.[46] An opinion that relies on such a falsely derived division of natural and unnatural foods is not entitled to deference. On the other hand, if individuals have a reasonable understanding of current human manipulations of food, but are uncomfortable that GM technology extends our capability to modify food past some perceived threshold of acceptability, then this viewpoint has the merit of attempting to generate an evaluation that comports with

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create high entry barriers against legitimate positions that cannot express themselves in terms of the dominant discourse.").

41. *See* Paul Slovic, *Informing and Educating the Public About Risk*, 6 RISK ANALYSIS 403, 410 (1986) ("Perhaps the most important message from the research done to date is that there is wisdom as well as error in public attitudes and perceptions.").

42. Lee Ross & Donna Shestowsky, *Contemporary Psychology's Challenges to Legal Theory and Practice*, 97 NW. U. L. REV. 1081, 1088 (2003). We are surrounded by efforts to influence these interpretations and definitions. It is difficult to effectively discriminate among this surfeit of signals, and a pervasive response is an alienation from various media as reliable sources of information. Instead, one picks and chooses one's preferred provider(s). The recent attention to Internet news services that match the subscribers's political and economic orientation suggests the difficulty of generating a common conversation. *See* CASS R. SUNSTEIN, REPUBLIC.COM (2001).

43. *See* Paul Slovic, *Perception of Risk*, 236 SCIENCE 280 (1987).

44. Cross, *supra* note 20, at 904 ("The Gordian Knot is segregating the amount of perceived risk that is explained by the public's cognitive limitations from the amount of perceived risk that is explained by some value issue."); *id.* at 950 ("To the extent that [public] perceptions are grounded in cognitive limitations, biased information sources, cognitive dissonance, control, or framing bias, the perceptions are unworthy of reliance. Public perceptions influenced by voluntariness, catastrophic potential, or dreadfulness are values that may be appropriate for consideration by regulators of risk."). Cross describes these various factors affecting public participation in detail. *Id.* at 899–927. *See also* Cass R. Sunstein, *Selective Fatalism*, 27 J. LEGAL STUD. 799 (1998) (concluding that some heuristics, cognitive pathologies, influences, and social norms that affect the public's perception of risks are valid while others are not).

45. *See* George Gaskell et al., *Biotechnology and the European Public*, 18 NATURE BIOTECH. 935, 937 (2000); Susanna Hornig Priest, *US Public Opinion Divided Over Biotechnology?*, 18 NATURE BIOTECH. 939, 940 (2000).

46. *See* Channapatna S. Prakash, *The Genetically Modified Crop Debate in the Context of Agricultural Evolution*, 126 PLANT PHYSIOLOGY 8, 9–11 (2001).

available facts.[47] The problem is that the population of people expressing concern about the "unnaturalness" of GM foods possess a hodgepodge of valid and invalid assumptions and beliefs.

A further complexity is that the definition of an "informed" participant is itself a contested subject. When precisely does someone become "informed"? What type of information is an "informed" person expected to know, given that the scope and quantity of potentially relevant knowledge on virtually any major controversial issue is beyond the grasp of any single individual. The requirement for "informed" participation thus risks being used (or abused) strategically to exclude or diminish selectively some types of information, knowledge, or experience.[48] Notwithstanding this valid concern, it is almost always the case that an individual will need a basic understanding of the principal arguments and positions on an issue and their supporting evidence to participate effectively and meaningfully in deliberative processes.

The bottom line is that the "public" may be ignorant on some aspects of science and technology, but they are not uneducable. With adequate preparation, information, commitment, and time, most members of the public have the capability to become knowledgeable about virtually any science and technology topic.[49] The much-quoted advice of Thomas Jefferson is still applicable: "If we think [the public] not enlightened enough to exercise their control with a wholesome discretion, the remedy is not to take it from them, but to inform their discretion."[50] While education is important, it also must be recognized that

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47. *See* Marris, *supra* note 31, at 546 ("A common viewpoint [in a survey of European citizens] was that we have previously only been crossing already existing organisms, while we are now also creating novel life-forms that would not have existed otherwise. Thus, genetic engineering techniques were described as 'pushing Nature beyond its limits,' and were thought to 'upset the equilibrium of Nature.'").

48. Abelson et al., *supra* note 19, at 242 ("An additional 'double-edge' built into the deliberative paradigm is the naive assumption about the role of information as a tool for informing dialogue which ignores the reality of information as a source of power, with respect to its availability and use, in the participatory process.").

49. *See, e.g.*, Petts, *supra* note 19, at 218 (analysis of two citizen juries and citizen advisory committees convened to address waste strategy issues by British local authorities concluded that initial concerns of officials that public would be unable to comprehend technical aspects of the issues proved "unfounded").

50. Letter from Thomas Jefferson to William Charles Davis (Sept. 28, 1820), *quoted in* JOHN BARTLETT, FAMILIAR QUOTATIONS 344–45 (Justin Kaplan ed., 16th ed. 1992). Then-Administrator of the U.S. Environmental Protection Agency responded to Jefferson's advice as follows: "Easy for *him* to say. As we have seen, informing discretion about risk has itself a high risk of failure." William D. Ruckelshaus, *Risk in a Free Society*, 4 RISK ANALYSIS 157, 160 (1984). Critics of the "deficit" model of science and society, which holds that a deficit of education is the main cause of public unease with new scientific and technological developments, rightly point out that education alone will not change people's views that reflect a complex mix of values, emotions, experiences, and insights. *See, e.g.*, Editorial, *Dealing with Democracy*, 425 NATURE 329 (2003); Geoffrey P. Lomax, *From Breeder Reactors to Butterflies: Risk, Culture, and Biotechnology*, 20 RISK ANALYSIS 747, 750–52 (2000); Susanna Hornig Priest et al., *The "Trust Gap" Hypothesis: Predicting Support for Biotechnology Across National Cultures as a Function of Trust in Actors*, 23 RISK ANALYSIS 751, 757 (2003) (reporting statistical results showing that less than 7% of the variance in public opinion

strongly held beliefs and initial impressions are highly resilient to revision even in the face of powerful contrary evidence.[51]

The public perception of science and technology subjects must, therefore, be considered cautiously given the high potential for such opinions to be influenced (if not dominated) by ignorance, misinformation, unwarranted emotional reactions, preexisting biases, and decision-making heuristics. Given this reality, there is an inherent tension between democratic decision making and effective risk management.[52] To minimize this tension, public participation mechanisms must include adequate provision for education and deliberation to ensure that the resulting public opinion is informed.[53] Of course, requiring education as a precondition of participation has the effect of severely limiting the number of people who can participate, thus retriggering the tension between fairness (including representativeness) and competency.[54] Moreover, public education is a necessary, but not sufficient, prerequisite for meaningful and effective public participation. We turn next to some of the other challenges for public participation processes.

B. Other Challenges and Limitations of Public Participation

There are a number of other well-recognized limitations or problems with public participation in decisions involving science and technology. For example, if public contributions should be preconditioned on some basic level of education or knowledge, there are, as suggested in the previous section, potential problems with regard to the representativeness of the participants. More generally, there is

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on biotechnology could be directly explained by variance in knowledge); *see also supra* note 31 and accompanying text. Granted, education alone is not a panacea that will shift the public's appreciation of science, but some basic understanding of the relevant scientific issues is usually critical for effective and meaningful public participation.

51. *See* Slovic, *supra* note 41, at 405 ("[P]sychological research demonstrates that people's beliefs change slowly and are extraordinarily persistent in the face of contrary evidence. Once formed, initial impressions tend to structure the way that subsequent evidence is interpreted. New evidence appears reliable and informative if it is consistent with one's initial beliefs; contrary evidence is dismissed as unreliable, erroneous, or unrepresentative.").

52. *See* Cross, *supra* note 20, at 888 (describing "a conflict between the goals of a democratically responsive government and an effective public health protection program").

53. Laird, *supra* note 5, at 355 ("Uninformed choice is not a democratic exercise."); SCI. ADVISORY BD., U.S. ENVTL. PROT. AGENCY, IMPROVED SCIENCE-BASED ENVIRONMENTAL STAKEHOLDER PROCESSES 8 (2001) ("An adequate treatment of science is possible in stakeholder processes, but typically only if substantial financial resources, adequate time, and high-quality staff are available from the outset to allow the necessary deliberation and provide the necessary support on an iterative basis through ongoing interaction with the stakeholders.").

54. Albert Weale, *Deliberative Democracy: Science Advice, Democratic Responsiveness and Public Policy*, 28 SCI. & PUB. POL'Y 413, 417 (2001) (While deliberative techniques such as citizen juries, consensus conferences, and deliberative polling are supported by many proponents of public participation, "none of these techniques provides for the active involvement of all citizens in the making of decisions. Samples are simply too small to give the scale of civic engagement that classical republican conceptions of democracy aspired to . . . .").

severely limiting the number of
g the tension between fairness
[54] Moreover, public education is
meaningful and effective public
hallenges for public participation

zed limitations or problems with
ce and technology. For example,
on some basic level of education
vious section, potential problems
icipants. More generally, there is

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knowledge); *see also supra* note 31 and
ea that will shift the public's appreciation
scientific issues is usually critical for

cal research demonstrates that people's
e face of contrary evidence. Once formed,
nt evidence is interpreted. New evidence
ne's initial beliefs; contrary evidence is

g "a conflict between the goals of a
blic health protection program").
ce is not a democratic exercise."); SCI.
ED SCIENCE-BASED ENVIRONMENTAL
ent of science is possible in stakeholder
es, adequate time, and high-quality staff
ation and provide the necessary support
takeholders.").
dvice, Democratic Responsiveness and
e deliberative techniques such as citizen
supported by many proponents of public
ctive involvement of all citizens in the
e scale of civic engagement that classical

an inherent tension between part
participate in a process, the n
appropriate knowledge and edu
deliberation.[55]

Participation might also b
gender, or racial lines because o
for participation. Many of the n
weakened, or perhaps contradic
of some segments of the popul
participation is justified on th
participate in the governance of
frustrated if certain segments o
circumstance, especially if the
participants.

One prevalent concern is tha
will be dominated by powerful
already entrenched positions.[5
commitments, interest groups ha
general public in having their v
yet those interest groups may n
congressional study found that
public participation before fed
groups accounting for the vast m
democracy theory, emphasizing
central role for organized intere
strand, preferring direct democr
citizens expressing and recon
paramount importance.[58] For pr
processes may have a net antic

55. *See* Jim Rossi, *Participation*
Agency Decisionmaking, 92 Nw. U. L.

56. *See* Fiorino, *supra* note 5, a

f other issues and interests they
l ignorance" with respect to GM
w them into deliberation on this
participation processes becomes
he public decide that they have

in the rarest of cases, to provide
science-laden policy issue. The
erent interests, perspectives, and
roversial in the first place. Thus,
ilst it may be attractive to aspire
other thing to give real effect to
and values present amongst the
on processes report achieving
rt to achieve agreement often
nd watered down that they are

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incident that occurred at the conference
e conference room part way through the
out the speaker and not allowing him to
or convinced the protesters to allow the
stors would be given an opportunity to
tatement (which was noteworthy for its
ference participants attempted to engage
sters abruptly stated that they were not
provided a vivid illustration that some
rational exchange of views.

CTION 2 (1965) (rational individuals will
issues where individual's participation
utweigh the benefits); James S. Fishkin,
OL'Y ANALYSIS MGMT. 128, 128 (2003);

Public participation mecha
to reach decisions. Providing
investment of time and resource
the benefits of public participat
costs and potential delays in ma

Another issue is whether
decisions. This raises the subs
quality of decisions and the con
failure) of a particular decisio
usually involve process-oriente
to define and apply.[66] Some stu
based on the opinions of pa
participation process,[67] while o
The success of a particular mec
specific factors such as the natu
framework for the involvement

Finally, public participatio
have the opposite effect of e
between proponents of conflic
"[e]mpirical research has consi
rather than quell controversy, le
instead of deliberating effective
"the public participation move
did very little to promote the pr
corroded them, by reinforcing
confrontation."[72]

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65. CHARNLEY, *supra* note 4, at

66. *See* Caron Chess & Kristen
Know What Works?, 33 ENVTL. SCI.
process goals used by some researcher

67. *See* CARY COGLIANESE, IS SA
IN REGULATORY POLICYMAKING (John

of the primary public participa-
nd their limitations. A common
nisms is the tension between
ter the level of public participa-
d deliberation.[75]

n election by the populace is the
As James Madison argued in the
lected representatives would "be
if pronounced by the people
s significant limitations as a
First and foremost, a relatively
s to vote, and most voters do not
about the candidates and their
rums, direct mailings, and even
rkplace water cooler all increase
n of this attention focuses on the
ne personal attributes and foibles
antive issues are discussed, there
in the electoral process for most
didate rather than an issue, and
ust address, most voters have no
individual issues.[77] Election of
, but not sufficient, requirement

Clinton Rossiter ed. 1961).
who base their electoral decision on the
e. Even those voters are then effectively

for effectively connecting citizen
laden issues.[78]

2. *Referenda and Initiatives*

As just discussed, one of th
vote for a candidate rather than
on specific issues of interest. In
on specific issues, states are
increasingly being held hostage
binding propositions on specifi
making on specific issues in wh
participate, referenda perhaps co
to the ideal of direct democracy

Yet, referenda and initia
assurance that voters will be edu
voting process is a one-time ev
deliberative processes that prov
with different views.[79] Citizens a
or "no" on a strategically drafte
amendment, negotiation, or com
majority-rules decision that proc
at the time, but which may be
implemented. Referenda also fa
other than as indirectly reflecte

3. *Public Notice and Comme*

The conventional mechan
Administrative Procedure Act
proposed agency decision and
While notice-and-comment is a
trative law, it has important lim
participation. Notice-and-comm
groups and professional organi
citizens.[82] In the relatively few

on and traditional mechanism for
the local, regional, state, and
when they want to provide an
in-person venue where different
lenged. They can serve a variety
east the appearance of individual
already made, warn the agency
egal or procedural requirements,
e public meetings are generally
ly adopted a proposed course of
n the scope and content of the
c hearings often provide a useful
ead to revisions or reversals of

ear to be a formality in which the
ions of listening to the hearing
position. Participants at such
nized.[87] Public hearings also tend
s, in which entrenched interest
sition through whatever means

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a note 13, at 78 ("The common practice
g a decision has been done is cause for

outcome of public meetings] found that

forums may increase anger.").
gs tend to be dominated by organized
[public hearings] may force participants
ring process by organized interests can

5. *Reg-neg*

One of the primary initiativ
and deliberation on regulatory is
"reg-neg."[89] The goal was to ove
notice-and-comment rulemakin
drafted by the regulatory agency
representing the major interest
extended period to develop thei
that convenes the reg-neg also
publishing as a formal propo
negotiation. The participants in
beginning of the process bef
participate in an ongoing delibe
often competing, interests. Th
participants who are highly edu

While initially viewed with
over the years. One set of issu
committee. Controversies have
excluded. Moreover, the people
of entities with a direct interes
public interest groups, or gov
referred to as "stakeholders" a
While one or two individual
committees, this process genera
tion by the ordinary citizen.[92] M
a very time-consuming, expensiv
of the reg-neg process is often n
imposed unilaterally by the age

Notwithstanding these criti
that negotiated rulemaking leads

89. *See generally* Negotiated R
Negotiating Regulations: A Cure for M
McMahon, *The Theory and Practice o*
90. *See* Fiorino, *supra* note 5, at

ry committees can be established
nonprofit organizations. In some
dvisory committee, is primarily
dress a specific issue or problem,
d viewpoints in the community.[96]
es include: providing an ongoing
mmunity representatives and the
gs of strong community concerns
cisions through the incorporation,
ed by the citizens' committee.[97]
n of members and provide for
ttees tend to meet regularly over
o citizen advisory committees in
fectively enhanced deliberation,
but were not very effective in
with citizen advisory committees
the process and, therefore, not
s.[100] Other potential problems are

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e Actual Performance of Negotiated
Cary Coglianese, *Assessing the Advocacy*
er, 9 N.Y.U. ENVTL. L.J. 386 (2001)
and others).

s, *supra* note 19, at 209–10.
mption of Citizen Advisory Committees:
IPETENCE IN CITIZEN PARTICIPATION 87,

upra note 19, at 209–10.

os may become elitist, or otherwise lose
at the general public will not support any
"an important contradiction in the use of

that the advisory committee rec
maker,[101] or the advisory commi
to address the issues.[102]

7. *Deliberative Polling*

Public opinion polling and f
opinion on a wide variety of issu
transfer of information from the
permit any interaction or delib
these techniques to include
Deliberative polling involves
opinions of the participants, (ii)
meeting where the participants
themselves, and (iii) a second o
following the intense deliberati
is not to reach any consensus a
individual opinions of the parti
results of pre- and post-delibera
shift as a result of deliberation.[10
three to four hundred participant
undertaking that restricts its prac
other hand, this technique invo
sample of the population in a
deliberative methods such as cit

8. *Citizen Juries*

Perhaps no idea has recei
mechanism for public participati
"citizen jury."[110] Citizen juries, s

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citizen advisory bodies in the American
often become out of touch with the citi

101. Lynn & Kartez, *supra* note 9

questioned by the citizen jury
, the jury members typically

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r presented at the 1998 Annual Meeting
998), *available at* http://policy.rutgers.

e citizen jury mechanism in so-called
f Technology, an agency of the Danish
Jaeger, *Danish Participatory Models.*
rds [sic] More Democratic Decision-
ra note 110, at 4–5. The website for the

ncluding Greenpeace, the Consumers'
juries in different regions of the United
on GM foods and crops. *See* http://www.
ored a citizen jury on GM foods in the
oods, with the jury concluding that there
ugh 6 of the 15 jury members dissented.
l Should Be Available to Buy in the UK
k/news/pressreleases/citizensjury_result.
he Internet, with "thousands of people"

nology, Citizens' Final Report Presented
h added protections), *available at* http://

enetically Modified Foods, *available at*
, 1998). This "Citizens Conference" was
ld in the National Assembly. It received
nal report rejected a moratorium on GM
s including labeling of GM foods and
ams for GM foods. *Id.*
Conference Model in Switzerland and
NOTES 57, 59–60 (2001) (favoring gene
e international economy but identifying

E SAFETY & ETHICS OF GENETICALLY
GM foods calling for stricter regulatory
_Report.doc (Nov. 14–16, 1998).

deliberate among themselves a
a consensus model.

Citizen juries are based on
necessary time and resources to
complex concerns and making s
The citizen jury provides a veh
ordinary citizens."[120] This mech
engaged group of "ordinary" c
tainted by any pre-existing invo
other public participation mec
inclusive of, interest groups, v
public consultation processes.[1

The citizen jury mechani
Citizen juries are time- and reso
number of citizens.[123] Their val
the citizen jury having some la
citizen juries usually report tha
Yet, the major commitment of
jury would hardly be worthwhi
In countries such as Denmark,
and institutional mechanism fo
citizen juries often carry sign
government decision makers.[12
convened ad hoc by nongove
impact on the general public,

119. Leroux et al., *supra* note 3,

120. Andersen & Jaeger, *supra* n

121. Leroux et al., *supra* note 3,

122. The first citizen jury in the U
in the United Kingdom (which involve
average approximately $150,000 (U.S

123. Fiorino, *supra* note 5, at 23

124. Of course, a citizen jury ma
receives broad media coverage that hel
relevant issue. This type of public part

Bias can result from the self-
rces in which the solicitation is
xplicit bias by the conference
plicant pool. Given that most
rganizations with a clear policy
ays be suspect given the many

ns. For example, it is not always
controversial social and policy
e participants to come to some
d and generic that it has little or

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f their deliberations. *Id.* at 31; Fiorino,

of jurors and expert witnesses can bias
("Subtle changes in the way that risks
isions."). A vivid example of the subtle
erts, even when an attempt is made to
anels held across Canada sponsored by
otransplantation. Three of the citizen
ation, while the other three panels with
See James R. Wright, Jr., *Alternative*
onsulting the Canadian Public About
40, 41 (2002).
escribing the process for a consensus
candidates responded to a solicitation
independent radio stations, and then
-demographic criteria such as age, sex,
of jury participants suffer similar self-
ogy selects participants by sending out
the respondents. Only 120–150 of the
substantial self-election. Andersen &

uitment method . . . may not ensure
ady interested in the topic will offer to

"the tight hold that decision makers
undermine its legitimacy").
x et al., *supra* note 3, at 468.

no value.[134] The small number
potential for significant fluctuat
chance selection of one or two
rare in the population could seri
juries may be most useful in gau
where there is no correct ans
counterproductive impact on pu
issues and do so erroneously.[13

9. *Internet Consultations*

The Internet offers inte
consultation and deliberation.
online surveys or referenda, e
possible for large numbers of p
inexpensively and easily. Thes
scope, breadth, and depth of go
stakeholders during policymak
caveats about online consultat
accessibility of the Internet faci
also limits the ability to control
not be representative of the ta
organizations could dominate th

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134. The consensus statement de
of telecommunications policy, was rep
supra note 110, at 15. Citizen juries co
to produce recommendations that are
participants. Andersen & Jaeger, *supra*

135. For example, two citizen ju
organizations including Greenpeace, t
their findings that "GM crops make far
GM Jury Calls for "Moratorium" on
available at http:www.gmjury.org/do
growing body of data demonstrating
environmentally harmful herbicides ar
Why U.S. Farmers Have Adopted Gen
3 AGBIOTECHNET, Feb. 2001, at 1, *a*

ive, effective and deliberative
e public, against the background
ps in the UK and the options for
ue and innovative nationwide
and effective opportunities to
ation people may want and need
ling exercise or a mini-referen-
tunity to register their views.[144]
e identified need to involve the
cess for GM foods, in contrast
who had generally dominated
c Debate provides a useful case
ions of attempts to involve the

ation with a body representing
ok a scientific study of GM
le Evaluations (FSE). The study
sity on the farm. The effects on
en areas planted with GM crops

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ential challenge with online methods is
ured listening' to so many individual

w.gmpublicdebate.org.uk/ (last visited
'GM Nation? The Findings of the Public
as released in late September 2003 and
Nation_FinalReport.pdf.
C DEBATE FINAL REPORT, *id.* at app. B

142, at 11.
g people at the grass roots level whose
GM foods. *Id.*

and areas planted with their
governmental advisory body
Biotechnology Commission (A
report on the regulatory proces
Trial."[148] One of the key recon
crucial for the public to be invo
taken" concerning GM crops
informed public discussion of th
gies."[149] The agency responsibl
Environment, Food, and Rural A
tion in May 2002 and announc
crops.[150]

B. Structuring the Public I

In July 2002, DERFA S
"[g]overnment wants to provide
openly and reach their own ju
balanced" discussion.[151] She
scheduled to begin in the autum
budget of £250,000.[152] The deb
Public Debate Steering Board (h
Professor Malcolm Grant. Profes
including members of nongovern
the health profession, consumer
scientific communities, in ar
viewpoints.[153] The initial annou
specifics on how the debate wou
of developing an implementatio
GM Public Debate, the governm

146. AGRIC. & ENVT. BIOTECH. C
http://www.aebc.gov.uk/aebc/pdf/crops

147. The Agriculture and Environ
strategic advisory body on biotechnol

· Willbourn Research Develop-
foundational workshops. Corr
d the nine workshops convened
Wales, Scotland, and Northern
ıed to extract issues of public
ɔard in preparing for the main

rkshops, Professor Grant wrote
g the initial £250,000 budget for
t the next phase, which was to
d arrange for deliberation of the
ɔnal funding. Professor Grant
der to deliver a credible and

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eraction of the GM Public Debate, The
, *at* http://www.gmnation.org.uk/docs/
The website for the Science Review,
://www.gmsciencedebate.org.uk/ (last
f GM foods, conducted by the Strategy
w.number-10.gov.uk/su/gm/index.htm

Programme of Workshops to Plan GM
blicdebate.org.uk/docs/pr141102.doc.

ngdom's executive agency in charge of
coi.gov.uk/homepage/index.html (last

w.gmpublicdebate.org.uk/ (last visited

at http://www.gmpublicdebate.org.uk/

Findings of the Public Debate, *at*
isited Oct. 29, 2003).

effective debate.[161] In February
£250,000 and agreed that DE
Notwithstanding this grudging a
undermined the public credibil

The Board also voiced co
date for the debate. The result
2003, one month after the com
2003 deadline, the Board feare
the public debate.[164] These c
Minister Mike German, who ac
in order to integrate the results
Welsh Assembly, and Northern
the public debate until after M
requested a delay to the start
participation of the entire U.K.
In February 2003, in addition to
Secretary Beckett extended the
Despite the increased budget an
and short time line for the publi
example, the independent steer
debate expressed concern that t
the debate properly.[168]

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161. Letter from Malcolm Gran
Honorable Margaret Beckett, Secretar
2002), *at* http://www.gmpublicdebate.
Grant]. One estimate reported in the m
a proper national debate. Mark Towns
Sham, THE OBSERVER, Nov. 10, 2002
0,6903,837259,00.html.

162. Letter from Margaret Becke
debate.org.uk/ut_09/ut_9_404.htm.

163. *See, e.g.*, Press Release, Fri
6, 2003), *at* http://www.foe.co.uk/resc

164. Letter from Malcolm Grant
determine the effects of GM herbicide
concerns that the June 2003 deadline e

ıally commenced and continued
onsisted of a series of confer-
K. The program of events was
apture a wide range of opinions
ial about GM foods, including
mational CD-ROMs, and a film
cussion.[172] The most prominent
ree in England and one each in
v a total of approximately 1,000
nty meeting were undertaken in
local organizations were also
orms that solicited participants'
ngs and were available through

rious size were held across the
,340 people returned feedback

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sources than those that had been given
bers were gravely disappointed that the
o achieve the public debate's stated

aningless" Until Government Halts GM
ww.genewatch.org/Press%20Releases/

escends into Farce (Nov. 29, 2002), *at*
1129004345.html.
. MORNING NEWS (Oct. 21, 2002) ("All
t another public relations exercise. . . .
se, revealing the best way to 'manage'
oted as saying 'the decision has already
food/wm211002.txt.
Debate Starts (June 3, 2003), *available*
PUBLIC DEBATE FINAL REPORT, *supra*

142, at 14–15.
ote (Feb. 26, 2003), *available at* http://

142, at 14.

forms from such meetings, an
people may have attended the n
completed and returned, inclu
from the Internet or after bein
additional members of the pu
Debate.[178]

Recognizing that the main
writing, e-mails) had the potent
given the self-selection involve
a parallel component consisting
comprised of randomly selec
involvement in the GM contro
GM issues from a typical cross
component involved in-depth
participants, it was referred to
Debate.[181]

Despite the grand ambition
was widely criticized in the me
effectiveness.[182] As one British
national debate: "It's obscure; i
been nationally advertised—in
forgiven for thinking the gover

F. The Final Report

The Final Report of the G
2003.[184] The major finding of
uneasy about GM foods.[185] Acc
out most clearly from the Publi
are cautious, suspicious or ou

176. *Id.* at 25.
177. *Id.* at 30.
178. *Id.* at 15.
179. *Id.* at 14 ("We recognised f
provide evidence of views from only a

lic who otherwise did not elect
at the general population does
GM of many active debate
row-But-Deep also expressed
me even stronger with further
rtain about their concerns than
Debate. They were also much
f GM foods.[192] This difference,
e and the randomly selected
dence cited in the Final Report
nately influenced by organized

an ambitious and impressive
M foods. There is no doubt that
in increasing the awareness,
ıs with respect to GM foods. It
ebate will affect governmental

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mmented on the number of people who
elt themselves well informed about it,
he general public. People complained
nated by partisans for and against GM
kers suggested that some meetings had
ers there were complaints of excessive
("We believe that some organisations,
e and the Soil Association encouraged

Despite its ambitious und
shortcomings and was mired i
effort likely involved more citiz
on GM foods, only a relativel
participated, and most of those
engaged in the GM issue.[194] As a
during the Public Debate attem
advance true deliberation bet
Indeed, the Public Debate invol
holding different views in an a
position. Rather, the Public D
people sending letters or e-m
expressed their predetermined p
opinions to be tested and devel

For these reasons, the actua
well with its stated objectives.
intended to be "an opinion pol
final report and most of the me
way.[196] The Public Debate was i
activists who were already hav
being dominated by advocates
sparsely from the "general publi
an "innovative, effective and del
very little deliberation, and simp
predetermined opinions.[199]

The Public Debate also su
manipulation and insincerity.
Board over organizational issue
line, and the possibility of gover
debate, all undermined the cre

194. A U.K. biotechnology indu
claimed that the cluster analysis produc
the 37,000 feedback forms can be cle
ABC, *GM Nation?—"Public Mee*

.K. debate immediately drew
arm, the COI.[203] Second, any
and given the proper time to
ued by internal disagreements
issues, seriously jeopardizing

gs strategically, playing up the
position, while attempting to
they fear the outcome will be
roups helped to undermine the
uncing the debate as a "sham,"
rocess, while at the same time
members and supporters to
ould seek a favorable outcome
he same time using their public
were unfavorable. Finally, the
porting event in which one side
eliberative, consensus-seeking
ng participants to their prior
l nature of the event.
red to have been a disappoint-
process, the U.K's experience
ttempts to engage the public on
ods.

COI and Statement by the GM Public
uk/gmdebate/steering_board.asp (last

Experts, DAILY MAIL (London), Aug.
food/dm220802.txt.

mment Launches GM Debate (June 3,
while at the same time urging active
http://www.foe.co.uk/resource/press_
c Information Network, Urgent: Please
with authors).

V. SUGGESTI

From this brief summar
experience with public partici
and somewhat confusing rang
public.[205] The trend today is cl
there is genuine two-way comm
well as among citizens.[206] Th
longstanding tensions betwee
public participation process
necessarily limited to a rela
adequately informed to be eff
a public participation proces
including:

Sponsorship. One or m
interest groups, media orga
organizations can sponso
sponsorship can result in g
such processes, but as the U
also raise concerns about th
tion.

Purpose. Public parti
objectives, including: (i) to n
tions for input into decision
by others, (iv) to solicit pub
(vi) to educate participants.

Geographical Scope. P
national, or international in
national level when the iss
efficiently addressed in a si
other issues that may be aff
ecological and economic eff
consideration.

Participants. Some "pu
stakeholders, consisting of
personal interest in the outc
even exclusive participatio
with no previous involveme

satisfy the ideal (and often
ause no single practice in itself
ry. But individual practices can
s more or less likely to move a
list of recommended practices
nentation and context-specific
f efforts, some will seem more
be emulated more often. A
should not close out further
ble outcome, nor a realistic
s or their instruments. Broad
not squelch further practical

encouraging flexibility and
hes, there is a need to bring
tion undertakings. Openness to
port that enables experimenta-
mentation. In the United States
generally ad hoc undertakings
academic, and organizational
ation for these many different
the general public, the media,

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ttempts to evaluate which formats for
ACTERIZATION, *supra* note 13, at 76
public participation, deliberation, and
l empirical analysis that relates the
he problem being addressed, and the
s selection in the future. *See* Fiorino,
titutional policy analysis that relates
policy problems.").
3, at 96 ("[I]t is not possible to predict
given situation. Deliberative methods
e on its users and the setting in which

and policymakers.[211] Two clo
of the Danish Board of Tech
world leader in innovative pub
is "one, indispensable criterio

> This is that the policy-make
> able and willing to listen a
> public. This also means that
> credibility with the public. I
> participants to give the requ
> to the outcome.[212]

A central coordinating body, p
with the responsibility for in
technology issues with impor
best approach for bringing
processes in the United States

The establishment of a c
format of public participatio
contrary, the central coordinat
methodologies and experiment
The central body would provid
processes. Of course, a critical
official role, if any, the outp
sponsored by the central body

A greater emphasis on new
promise for new forms of e
deliberation. An example is
pharmacogenomics that wou
participation.[215] Citizen juries,
hundred participants, conduc

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211. *See* Jasanoff, *supra* note 4
may be too *ad hoc* or issue-specific t

212. Andersen & Jaeger, *supra*

213. As an analysis of the fi
successfully mapped the format of

ieans that our understanding is
may be subject to revisions on
undermined by this concession
. Similarly, we should regard
eans to promote a fundamental
ed vigilantly and continually
Enabling public participation
er complete.

rticipation as a goal that, once
ner, it is a process that requires
s (certainly more than we have
f methods and content. It is an
ıl and creative attention.

troversies, 4 AGBIOFORUM 186, 187