Community Participation in Environmental Decision-Making Process: Can It Reduce Disproportionate Impact?

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ABSTRACT

Environmental health exposures impose a disproportionate burden on low-income populations and communities of color. While many factors contribute to this inequitable impact, one important influence is the ability of such communities to participate in making public policy decisions about environmental health. In this report, we seek to describe and analyze the characteristics of communities that contribute to their capacity to participate in making environmental decisions and of environmental policy decision making processes that invite or discourage such. The goal is to identify broad steps the U. S. Environmental Protection Agency (EPA) can take to design programs and policies that achieve more meaningful participation.

Previous analyses have identified ten important domains of action to strengthen community capacity, including leadership, participation, skills, resources, social and organizational networks, sense of community, understanding of community history, community power, and community values. Our review of the specific literature on environmental justice and disparate exposures suggested three additional domains that are particularly promising for interventions: community cohesion, language capacity, and community information. In addressing all of these domains, we proposed five basic strategies for enhancing community capacity, including training and technology transfer, technical assistance, community-based participatory research, empowerment approaches, and community organizing/social action.

Each of these capacity-building strategies offers some promise for helping EJ communities address their concerns. Our review suggests thatmany choices from bottom-up and agency-down intervention are available to increase capacity. Careful documentation and evaluation of such efforts will help to establish a systematic body of knowledge that can help to make informed choices and match interventions to community contexts.

In order to more effectively reduce disparate environmental exposure and engage the public in making environmental policy decisions, we recommend that the EPA engage relevant constituencies in participation processes early, provide these constituencies with the resources and information that can contribute to effective participation, and ensure that the outcomes reflect participation.

By strengthening community capacity, advancing authentic participation, and building democratic power, it may be to alter the demonstrated pattern of disparities that underlie the environmental “riskscape” of America – not by redistributing risk but by minimizing it in each of our communities. Thus, strengthening participation – by helping communities develop the capacities needed to be effective in such processes and by changing agency practices to better incorporate such voices – will be a key and proper task for EPA in the years ahead.

Introduction and framework

Environmental health exposures impose a disproportionate burden on low-income populations and communities of color. While many factors contribute to this inequitable impact, in this report we explore those which influence these communities' ability to participate in making public policy decisionsabout environmental health. Our goal is to identify the characteristics of environmental policy decisionmaking processes that invite and promote meaningful participation and those that discourage it so that the U. S. Environmental Protection Agency (EPA) can design programs and policies to achieve more meaningful participation.

In a May 2003 policy statement, EPA provided a rationale for public involvement in policy-making, "effective public involvement can both improve the content of the Agency's decisions and enhance the deliberative process. Public involvement also promotes democracy and civic engagement and builds trust in government" (1). The EPA statement explained that "such openness to the public increases EPA's credibility, improves the Agency's decision-making processes, and informs its final decisions" (1,p.1). The agency linked participation to its goal of promoting environmental justice by noting that "everyone, regardless of race, culture or income, enjoys… the same access to the decision-making process to have a healthy environment in which to live, learn and work" (1,p. 5). More recently, EPA has begun a process that will incorporate environmental justice concerns into rule-making (2), providing additional opportunities for participation.

In order to better understand and enable the realization of these policy goals, we propose a conceptual model of participation and its impact on policy processes. In this model, shown in Figure 1, the impact of exposures to environmental stressors(Box G) is determined by: the

presence of a particular mix of environmental stressors (Box A); the presence (or absence) of varying levels of determinants that affect the ability of communities to participate effectively in decision-making about those stressors, such as prior levels of social capital and community capacity (Box B), the current state of the community's capacity (Box C), as indicated by various dimensions of capacity, and the quality of the participatory processes themselves (Box D). These processes, shown by the two way arrows which illustrate the reciprocal relationships among variables of interest, mediate how communities respond to environmental exposures. The focus of this report is to explore the pathways and mechanisms by which changes in community capacity (Box C) and in participation processes (Box D) can lead to changes in environmental exposures (Box E) and in power, community capacity and collective efficacy (Box F). These changes in turn contribute to changes in environmentally-induced disease and disparities (Box G).

Figure 1 also identifies three distinct opportunities for EPA and other bodies to intervene to reduce environmentally-induced diseases and disparities: 1. by preventing exposure to stressors through regulation, product substitution, or engineering changes; 2. by strengthening community capacity through training, technical assistance, empowerment or community organization; and 3. by redesigning participation processes to encourage more authentic and meaningful participation in environmental decision-making. The focus in this report is on the second and third intervention opportunities.

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We argue that to affect environmental outcomes, these two intervention opportunities might be usefully coupled: efforts to improve participatory processes need to be linked to initiatives to enhance the power of groups to participate effectively, that is, to build capacity.

We also offer a continuum of participation strategies, ranging from "*Potemkin* participation" in which processes are purely formal and designed primarily to satisfy requirements and record that participation indeed happened, to "*Kabuki* participation", alsoformal but in this case staged conflicts between adversaries with little attempt to mediate or find common ground, to what we consider here the highest level of "authenticparticipation", in which community voices are invited and heard and common ground is sought. We describe the characteristics of such processes and also note that it is important for processes not only to be perceived as fair but for them to also have an impact on the outcome: reducing disparate exposures and protecting public health.

Our review and recommendations are informed by several principles of participation that grow out of our earlier work in this area. The first is that an understanding of participation processes and outcomes requires an appreciation that participants bring different values, experiences and priorities to the table. What constitutes a well-designed participatory process and desirable outcomes may differ for different participants, such as, environmental engineers, elected officials and low-income community residents. Any analysis must take these different perspectives into account. For example, some officials may be satisfied as long as they have followed the rules and requirements for participation while community residents may only accept an outcome that reduces disparate exposures. By acknowledging that reality is produced and reproduced by people acting on their specific interpretations and knowledge of the world (3), public officials and researchers can avoid some unnecessary conflicts on whose reality takes precedence.

The second principle informing our perspective is that the context in which an environmental issue or conflict plays out vitally affects the outcome. Participatory processes that

work well in stable communities might not succeed in engaging relevant participants in rapidly changing communities, such as, New Orleans recovering from Hurricane Katrina (4), Harlem in the midst of gentrification, or Los Angeles experiencing rapid immigration from Central America. A corollary is that participation processes might need to be tailored to the circumstances. Since different communities have different capacities for participation, one size does not fit all. While we do think that a general principle is to engage communities as early as possible, the complexity of preexisting capacities makes the promulgation of simple and transparent standards for engaging communities in making environment decisions equally complex. It also raises significant challenges with scaling up to an appropriate national policy.

The third principle is that any analysis of environmental decision-making must include an assessment of who has power to do what in a given situation. Defining clearer mechanisms for making environmental decisions and strengthening the capacity of low-income people and communities of color to participate in these processes are necessary but not sufficient steps to ensure equitable outcomes and stronger democracy, two key EPA goals. In our review, we seek to identify arenas in which power differentials may complicate decision-making. We also note that many low income, Black, Latino, Asian and Native American communities have assets not always recognized by agencies, including histories of activism and resistance as well as dense social networks. We suggest these can amplify the power of these populations to participate more equally in making decisions about the environment and health.

Because the question of power is so central to our analysis, we begin our argument by exploring the evidence on environmental justice and the role of power and specific community capacities. With that analysis in place, we broaden the framework to consider community capacity in a more general way. We then consider some basic environmental outcomes of

concern and identify the pathways by which community capacity can affect environmental conditions, also examining the relationships between community capacity and social capital, two concepts that are often conflated. We then turn to how levels of community capacity and socioeconomic disparities intersect with participatory processes to affect environmental outcomes. Finally, we conclude with some general principles and some specific recommendations to the EPA.

1. Disproportionate Exposures, Disproportionate Power, and Environmental Justice

While all communities can be at risk from environmental stressors, communities of color, often located in areas with concentrated poverty and cumulated socioeconomic disadvantage – that is, environmental justice (EJ) communities – are typically the most at risk. Here we briefly review the evidence on disparity and the factors that drive it, and then ask what the research tells us about specific community capacities that might matter. We will see that disparity exists, power matters, and that three factors, community cohesion, language, and information, are important to shoring up a community's ability to protect itself from disproportionate exposures. We use this review as a platform for further specification of different sorts of capacities that might matter as communities enter into participatory processes that address environmental exposures.

Environmental Justice Communities and Disproportionate Exposure

Many date the beginning of EJ concerns about disproportionate environmental exposures to protests in Warren County, North Carolina in 1982. Warren County, one of the poorest counties in the state and also 65 percent black, was the designated site for a hazardous landfill.

With the arrest of 500 people and a 1983 report by the U.S. General Accounting Office suggesting that such facilities in the South were disproportionately in black communities, EJ quickly became a civil rights issue (5). In 1987, a report by the United Church of Christ expanded the research to the national level, also finding disparity for African Americans, and the Argonne Laboratory followed with a report showing that Latinos were also affected, this time using ambient air quality standards as the measure of pollution (6).

Environmental justice gained further steam with a handful of influential case studies (7), and the federal government responded by establishing an Office of Environmental Equity (now the Office of Environmental Justice). In 1994, President Clinton signed Executive Order No. 12898, mandating all parts of the federal government to consider environmental justice. Some states, like California, followed just a few years later with their own environmental justice mandates and programming. Race as well as poverty had become an identifying factor for where environmental injustice was happening.

But, for environmental justice advocates, the real underlying reason for disproportionate exposure was not just ethnicity or money but *disproportionate power*. This power dynamic is, some argue, reflected in the very urban and rural "riskscapes" that placed freeways, hog farms, and other hazards near low-income communities of color while locating amenities such as parks and markets far away (8). In this sense, it is not race but racism – and a series of other power dynamics – that are being questioned by environmental justice activists (9).Profoundly democratic in their assertions and their values, activists essentially contended that their voices were not heard, their interests were not being represented, and they needed to get to the policy table by mobilizing affected residents (10,11).Such mobilization, in light of fewer economic and

other resources, meant improving community capacity and building the community cohesion that can allow constituencies to overcome a lack of money with a surfeit of purpose.

The important role of power, articulated in 1995 by Hamilton, “suggests that low-income people and communities of color are systematically disadvantaged in the political decision-making process” (12). This is exactly why demonstrating that race matters in the research is important.It is important on its own as it may demonstrate marginalization of certain groups and it is also a general econometric measure of powerthat then opens the quantitative side of the work to a recognition that what may look like a market effect – siting in areas with low land values which some might suggest is just economically rational – actually also reflects power differences". Race is, of course, not the only measure of power. In a 1999 study, for example, Boyce and colleagues found that that places with less power – as measured by data on voter participation, educational attainment, Medicaid access, and tax fairness – tend to have weaker environmental policies, greater environmental stress, and worse public health outcomes (13).

A meta-analysis by Rinquist of 49 empirical studies used newly developed regression techniques to assess common inequity patterns in the various research efforts. The analysis does indicate that evidence of racial disparity in environmental hazard burdens exist regardless of “the type of risk examined, the level of aggregation employed, or the type of control variables used in the analysis” (14).Rinquist notes that the findings on income are more mixed, although this may reflect a non-linear relationship in which pollution burdens are low for areas with no economic activity and those with great wealth, and peak at income levels somewhere in the middle range(15,16,17,18).

There are, we think, legitimate remaining concerns about the state of the research, including the need to better account for spatial autocorrelation (19) and consciousness of

regional variations (20,21).But the weight of the evidence is on the side of those who think that power, income, and race matter. The challenge then is specifying what sort of specific capacities matter for bringing the voice of less advantaged communities more fully into the decision-making process.

Disparity and Capacity

One arena of research that has given us some insight on specific capacities is the work on the temporal nature of siting and population shifts – the famous "which came first?" question. Using national longitudinal data, Oakes, Anderton and Anderson found no evidence for either disproportionate siting or subsequent "minority move-in"(22). Been and Gupta found some evidence for disproportionate siting in Latino communities while Mitchell, Thomas, and Cutter found evidence of move-in in South Carolina (15,23).Saha and Mohai warn that some processes may change over time – like the push towards NIMBYism in the 1970s, with more power for such blockage accruing to better-off and whiter residents – so that temporal patterns may not be consistent over time (24). But our point here is not to explore the timing of research *per se* but rather to use this as a springboard to talk about factors that influence a community's ability to gain and use power.

In one temporal study, Pastor, Sadd and Hipp used a novel measurement – "ethnic churning" – to try to understand how community changes influence a community's power to respond to disproportionate siting of environmental hazards (25). They identified three characteristics of interest: a community's cohesion, access to information and common language. They found that areas in Los Angeles County that received hazards were disproportionately more minority, poorer, blue-collar, renters, and less educated. They also found that there was no evidence of minority move-in, that is, all neighborhoods in Los Angeles County became more

minority over time and the pace was not faster in neighborhoods with the hazards being studied. For our purposes, their most important finding was that neighborhoods that received new hazardous facilities (in this case, toxic storage and disposal facilities) had experienced greater than average demographic shifts in the previous (and in a simultaneous model, the concurrent) decade. They labeled this "ethnic churning," a variable which is the absolute sum of shifts over time in demographic composition, and therefore captures changes between minority groups as well as between white and non-whites. The authors concluded that these shifting neighborhood patterns decrease community cohesion, making the areas politically weaker and more vulnerable to the siting of new hazardous facilities (25,p. 19).

Pastor and colleagues have also recently explored issues of linguistic capacity (26). After finding that higher-immigration areas were more likely to host hazards, freeways, and other air hazards (27),the authors created a measure of limited English ability: the share of households in a neighborhood that are linguistically isolated;that is, they do not have anyone in them above the age of 15 that reports speaking English "very well". In multivariate regressions that included race, income and other variables, they found that linguistic isolation was significantly associated with enhanced cancer risk from air hazards and tended to diminish the impact of measures like percent Latino and percent Asian.

Since what you don't know *can* hurt you, community information is also an essential ingredient for community power. And it seems that more information can reduce risk. Several authors have argued that the wide availability of data from the Toxic Release Inventory (TRI) has led polluters to clean up their acts; since firms do not wish to be exposed as "bad neighbors". Thus, requiring companies to provide accessible information may be an effective regulatory strategy that encourages firms to reduce emissions or to at least report reduced emissions (28).

The variable of interest here seems to be not information per se but a community's capacity to process, utilize, and shine a light on information.In recent work, for example, Pastor and colleagues have explored whether there was differential reduction in firm-based toxics in California over the years 1995 to 2005 depending on the neighborhood characteristics, including different variables that are standard in the literature: percent Black, percent Latino, percent Asian, per capita income and its square, land use, population density, and home values. They found that reductions were initially sharpest in the white community (holding all other factors constant) but after an environmental justice law was passed in 1999, largely at the behest of Latino legislators, reductions were fastest in the Latino community (29).

In sum, the evidence suggests that some specific dimensions of power and capacity matter, setting the stage for a fuller definition of community capacity and a discussion of how it can be measured, and how it can be altered in ways that will help protect health and facilitate participation in decision-making processes.

2. Understanding Community Capacity

Community capacity has been defined as "a set of dynamic community traits, resources, and associational patterns that can be brought to bear for community-building and community health improvement" (30). Since the term has been used in several fields, including community development, urban planning and public health, and conceptualized within varying theoretical frameworks, it is not surprising that the literature lacks precision (31). We try here to examine some of the issues discussed in the literature, thus setting the stage for our investigation of the intersection of capacity with participation.

What is Community Capacity?

First, Freudenberg has noted that the term community capacity is used to describe both a process for creating capacity and an outcome, a modifiable characteristic of communities (32). In this report, we use the term "community capacity" to describe a modifiable characteristic of communities and the term "community capacity building" to describe activities designed to increase community capacity. In a 2006 review, Raeburn and colleagues (33) identified three key dimensions of community capacity building, emphases on (1) assets and empowerment (versus disease and deficiency); (2) the role of bottom-up, community-determined processes and agendas(versus top-down/externally determined ones); and (3) the processes for developing community competence.

Second, researchers have considered community capacity as a modifiable variable that contributes to improved outcomes at various levels (e.g., individual, organizational, community and jurisdictional) and in various domains (e.g., health, program implementation, civic participation). These broad and sometimes divergent conceptualizations of community capacity make it important for researchers to specify which dimensions of community capacity they are studying and for interventionists to identify which elements of capacity they seek to modify in order to achieve desired outcomes. In this report, we focus on the community level; we regard changes in individuals and organizations as contributing to community change but not as ends in themselves. Similarly, we regard changes at higher levels such as in municipalities, states or nations as influences on community capacity and resources for capacity building. In much of the literature on community capacity building for health, interventions to increase the capacity of organizations within communities are conflated with interventions to increase the capacity of communities as a whole, an ecological fallacy we seek to avoid.

Third, we suggest that community capacity rather than social capital should be the main outcome of interest. Social capital has been defined as "those features of social structures – such as levels of interpersonal trust and norms of reciprocity and mutual aid – which act as resources for individuals and facilitate collective action" (34). Community capacity and social capital are two intersecting concepts, each used widely and inconsistently to refer to a broad spectrum of phenomena. In our view, community capacity is a narrower and more clearly defined concept and more useful to our purposes of identifying actions EPA and others can take to improve community participation in identifying and reducing environmental threats to health. It is also more clearly than social capital a characteristic specifically of communities, our chosen focus of inquiry, whereas social capital has been described as an attribute of social networks, neighborhoods, communities, cities, states and nations. Several reviews of the concept of social capital illustrate its breadth and recent critiques of its appropriate use (35, 36, 37, 38). To steer clear of this contested territory, here we use the concept of community capacity as our main focus. While we do see a role for social or community cohesion, a component of social capital (as indicated above), in enhancing community capacity, our interest is in the capacity side of the equation.

Finally, we regard collective efficacy (a variable in Boxes B and C in Figure 1), defined as a community's willingness and ability to act for one another's benefit (39), as one influence on –and outcome of— community capacity. Communities with more capacity have higher levels of collective efficacy and vice versa.Community cohesion, defined as the degree to which community members share values or a sense of belonging is one determinant of collective efficacy. Community cohesion can be either an asset or liability. For example, a community in

which most members believe that they are not able to make changes may have high cohesion but low collective efficacy.

Measuring Community Capacity

In order to assess the determinants and consequences of community capacity, researchers must be able to define and measure the concept. Developing valid and reliable metrics for community capacity will enable both etiological studies of the relative influence of various factors on community capacity (i.e., the impact of the factors listed in Box B in Figure 1 on the dimensions of community capacity listed in Box C.) and evaluation of interventions designed to increase community capacity.

Several investigators have proposed metrics and instruments for measuring community capacity. In a Canadian study, Maclellan-Wright and colleagues (40) developed and pilot-tested an instrument that included questions on nine domains to assess various dimensions of community capacity to use funding for community-based health programs. The domains were developed by experts and a literature review and included items on participation; leadership; community structures; the role of external supports; involvement of target population in analysis of problem; resource mobilization; skills, knowledge and learning; links with others; and sense of community. The authors concluded that the instrument provided useful quantitative and qualitative information on community capacity for health promotion. Trojan and Nickel used a similar survey to assess community capacity for health promotion in a neighborhood in Hamburg, Germany and found "considerable improvements in all dimensions of capacity building" in the neighborhood at the end of a five year intervention to build capacity (41).

The dimensions identified in this survey are similar to those proposed by Goodman and colleagues (42), then developed and applied to community capacity for environmental health

promotion by Freudenberg (28), Minkler and colleagues (43), and Parker and colleagues (44), described in more detail below. They include leadership, participation, skills, resources, social and organizational networks, sense of community, understanding of community history, community power, community values and critical reflection, discussed below and defined in Table 3.

The consistency in defining the components of community capacity suggests some consensus on its elements, a fact that makes the development of valid and reliable measures more feasible. Moreover, Bopp and Bopp have suggested that community capacityought to be mapped, a process they argue provides more useful spatial and qualitative insights (45). McKnight has also proposed a strategy for mapping community capacity (46).

While not exactly the same as measuring communities per se, there is a sizeable body of literature on the characteristics and functions of community coalitions and partnerships which assesses a number of the dimension of community capacity and helps inform this discussion. For example, Granner and Sharpe (47) conducted a literature review of measurement tools used to evaluate community coalitions and identified instruments for the dimensions of community capacity listed in Table 3. McMillan and colleagues (48) conducted a study of 35 coalitions organized to prevent alcohol and other drug problems, and included measures of participation, skills, and sense of community. Kegler and colleagues (49) examined 10 cancer prevention coalitions in North Carolina and key dimensions they addressed included: leadership, participation, skills, resources, and community capacity which they defined as "demonstrated ability of a community to organize itself to solve problems, particularly preexisting networks that had collaborated in addressing similar problems in the past" (49, pp. 344). (See Box 1 for a list of

selected dimensions of community capacity and other references that describe how they have been measured (50, 51, 52).

Box 1 Measurement Instruments for Selected Dimensions of Community Capacity

Dimension	References on measurement
Leadership	47,49,50, 51
Participation	47,48,49,50, 51
Skills	47,48,49
Resources	47,49
Social and Organizational Networks (Community Linkages)	47
Sense of Community	47,48
Community Power (Empowerment, Perceived Control)	47, 51,52
Communication	47,49
Group Cohesion	51
Community Capacity	52

In sum, a number of investigators have proposed methods for assessing and measuring community capacity but this work is still at an early stage. To date, there are no widely used, valid and reliable instruments for measuring capacity across settings, content areas and levels of organization. The development of such instruments is a priority for advancing research on community capacity but given the importance of context, it is likely that such instruments will need to include both quantitative and qualitative measures and at least to some extent need to be tailored for the specific use in a particular setting. Moreover, since community capacity is not a unitary, one-dimensional concept, no single instrument or metric will suffice to compare across settings and problems. Identifying which capacities are most important through empirical investigation will help with both measurement and the eventual task of working to improve capacity and participation. The previous discussion of Pastor and colleague's work on community cohesion, common language and finding and using information provide one example of such grounded studies (16,17,18,25).

Intervention Strategies to Build Community Capacity

As presented in Table 1 and described in more detail below, several strategies have been used to increase community and organizational capacity. Table 1 defines these approaches as applied to protection against environmental stressors. It should be noted that while these intervention strategies are not fully distinct from each other, e.g., a community-based participatory research approach could include technical assistance, they are conceptually different and their use results from different diagnoses of the causes of lack of capacity. They also differ in who is the agent for change, with training and technical assistance putting more power in the hands of formal institutions and CBPR, empowerment approaches and community organizing regarding the community itself as more of the change agent.

Table 1 Intervention Strategies to Increase Community Capacity

Strategy	Definition
Training and technology transfer	Process by which community participants gain knowledge, skills, competencies or technologies that enable them to participate in assessing and remediating environmental hazards and participating in relevant policy deliberations.
Technical assistance	Tailored support that enables community participants to gain information or skills to solve problems or to participate more effectively in decision-making processes
Community-based participatory research	A research process in which community residents participate in selecting issues, designing studies, interpreting findings and presenting results to policy makers for purpose of reducing environmental health disparities and promoting healthier public policies(52)
Empowerment approaches	Process by which individuals, communities and organizations gain power and mastery over their lives in the context of changing theirsocial and political environment to improve equity and quality of life (53)
Community organizing/social action	Community mobilization and organization to enable a disadvantaged segment of the population to make demands on the larger community for increased resources or more equitable policies. (54)

Training and technology transfer In this approach, lack of capacity is seen as a lack of informationand interveners seek to supply that information and the technology to acquire and process the information (55). It is a strategy suited to remedy the lack of information that has been identified as a barrier to participation. Examples of this approach include disseminating information about best practices, training programs for community leaders and activists, and the development of practice guides. Some of the problems identified with this approach are reaching agreement on the skills and information needed; assuring that trainees can use the new skills in practice settings; and the difficulty in including bottom-up perspectives in nationally-driven training programs (55).

Technical assistance (TA) In this approach, communities and their organizations receive hands-on assistance from technical experts or more experienced peers to complete various tasks. TA can be tailored to meet the unique needs of a specific community and can address a wide range of needs, from help in designing a survey to monitoring environmental pollutants to designing a media advocacy strategy (56). Some evidence suggests that not all organizations or communities are willing or ready to receive TA, perhaps requiring others kinds of support first (36), and that some forms of TA may be more likely to succeed than others.

Community- based participatory research (CBPR) In the last two decades, public health researchers have developed the concept and practice of CBPR, a process for "systematic inquiry, with the participation of those affected by the issue being studied, for the purpose of education and taking action or effecting social change" (57). CBPR is an approach to research that involves both knowledge generation and intervention strategies. A key diagnosis that elicits the prescription for CBPR is that community partners lack the power and a voice to shape interventions to meet their needs; a gap that the CBPR process can help to remedy. Drawing

from earlier social science approaches such as participatory action research, CBPR proponents make the case that this approach incorporates the wisdom and experiences of community residents, improves the validity and enhances the interpretation of research findings and prepares a cadre of residents who "own" and can advocate for the translation and implementation of findings (58, 59, 60).

Several recent reports document the application of a CBPR approach to reducing exposure to environmental stressors (39, 61, 62, 63). The challenges of CBPR include the time and resources it requires for effective implementation, the conflicts it can generate among participants, and some policy makers' resistance to accepting its findings (39,40,54,55,56).

Empowerment approaches WhileCBPR proponents identify both technical and political indicators for this approach, advocates for empowerment approaches to enhancing community capacity identify the primary problem as community residents' lack of power. Thus, the rationale for empowerment is to increase the power of community participants in order to give them a more equitable voice in defining the problem and devising and implementing solutions (64.65).In a recent review, De Vos and colleagues argue for a rights-based approach to empowerment, urging the organization of marginalized groups and classes so they can pressure the state to take action against health-damaging social trends and environments (66). The overtly political dimensions of this approach make some researchers and policy makers uncomfortable and its frank acknowledgment of power differentials may elicit the opposition of more powerful constituencies, who might lose power if empowerment approaches succeed.

Community organizing/social action Similar to empowerment, community organizing seeks to redress political imbalances but is grounded in somewhat different historical and theoretical traditions. To improve communities' capacity to participate in making decisions

about environmental or other health issues, community organizers seek to mobilize constituencies in order to enable them to operate more effectively in the political arena (67). Thus, organizers influenced by Alinsky seek to enable disenfranchised groups to participate more effectively in the political system as well as to transform power relationships. Community organizing has been used to improve health in a variety of settings and includes coalition building, development of organizational and community capacity, leadership development and community mobilization (68). Like CBPR and empowerment strategies, community organizing requires time and human resources and may elicit opposition from more powerful constituencies. As Rothman and colleagues have noted, different approaches to community organizing make different assumptions about power and process (54).

A Ladder of Capacity-Building

In an oft-cited 1969 essay, Arnstein described a "ladder of participation" (69), in which citizens are offered or claim varying levels of participation in planning, from manipulation at one end of the continuum to citizen control at the other. The strategies for community capacity building described here offer a similar continuum, ranging from being passive recipients of information to claiming the right to make key decisions about their communities. Table 2 illustrates this continuum of power. As will be explored in a later section, by examining formal and informal participation processes (Box D in Figure 1), both agencies such as the EPA and communities can identify where on this continuum they sit and what changes might be needed to stimulate more effective participation.

Table 2. A Continuum of Community Power

Dimensions of Power	
Rights	Examples
Right to be informed	Right to know laws, freedom of information act, mandatory reporting of toxic emissions, public environmental impact reviews
Right to sit at decision-making table	Mandate for citizen participation in zoning or siting reviews, negotiation for settlement of lawsuits
Right to say no	Legal challenges for violation of due process in zoning or environmental impact review, other lawsuits
Right to frame issue and identify options	Participatory processes in which citizens have equal voice with other players and ongoing role in planning processes
Right to make decisions	Ballot initiatives

Source: Freudenberg, 2004 (32)

Activities to Enhance Community Capacity

The strategies described in the previous section provide a framework for considering actions that public and environmental health officials, researchers and professionals can take to increase community capacity to act to reduce environmental stressors. It is the actions themselves, however, that determine the outcomes of capacity building efforts. Table 3, based on a model suggested by Goodman and colleagues (42) and developed by Freudenberg (32) and Parker and colleagues(44) describes the actions interveners can take to enhance ten distinct dimensions of community capacity. While some dimensions of capacity may lend themselves to one of the particular strategies previously described (e.g., training and TA to the development of skills), decisions about which activities to use to enhance the capacity of a specific community to achieve its defined objectives will require an empirical analysis in a particular time and place. In practice, capacity building interventions may blend strategies and activities based on different theoretical models.

Table 3 Activities to Enhance Dimensions of Community Capacity

Dimension	Strategies
Leadership	Prepare environmental activists to be leaders; educate community leaders about environmental issues; create forums to bring formal and informal community leaders together to consider environmental health issues; assist with strategic planning and policy development
Participation	Offer incentives for participation; conduct outreach to uninvolved sectors of population; provide residents with voice in making key decisions
Skills	Offer skills workshops and technical assistance on environmental health issues; create opportunities for participants to exchange skills; assist efforts to link those with skills inside and outside community to those with needs
Resources	Serve as bridge between community and external resources (e.g. state health dept, foundations); assist participants to identify and develop local assets; contribute staff time to community investigations; build capacity for advocacy; assist in writing grants and working with funders to support community groups.
Social and organizational networks	Support and nurture local, regional and national coalitions that bring together concerned citizens, environmental activists, scientists, health professionals and others for environmental health promotion activities
Sense of community	Support community events that build sense of identity; create safe spaces for community residents to discuss, analyze and study environmental health issues
Understanding of community history	Assist residents to study and analyze previous health and environmental issues facing community; prepare reports aimed at community residents that develop such understanding
Community power	Join coalitions for environmental health to enhance community strength; provide community with information so they can confront special interests effectively; support political reforms that level the playing field for those with less influence; provide scientific information that can be used in political arena
Community values	Articulate values that underlie public health efforts; defend community values on health against disease promoting organizations
Critical reflection	Assist community residents to analyze and reflect on successes and limitations of their actions to promote environmental health

Source: Modified from Goodman et al (42) and Freudenberg (32)

What's the evidence on outcomes?

Interventions to increase capacity have been launched at various levels including individual, community, organizational and municipal. In addition, researchers have assessed the impact of changes in capacity in various domains, including health, participation in decision-making and program implementation.

The evidence for the impact of community capacity (defined in some studies as social capital) on health comes mostly from etiological rather than intervention studies. For example, in a state-level analysis, Kawachi and colleagues (70) concluded that social trust and group membership were associated with total mortality. Sampson and colleagues (39) showed relationships between collective efficacy and violent crime as well as other health outcomes (71). Other studies have found no such associations (72). Thus, whether or not community capacity has any direct or indirect effects on health continues to be contested.

More evidence, recently reviewed by Chinman and colleagues (45), demonstrates that increasing organizational capacity can lead to improvements in the implementation of prevention programs. Such approaches have guided organizational capacity building for HIV prevention (73) and environmental and occupational health (74).

In a review of the evidence on empowerment strategies, Wallerstein concluded that empowerment is a "viable public health strategy" and that empowerment strategies, participation, and other bottom-up approaches have become prominent paradigms within public health and can be used to reducedisparities in environmental degradation, prevent disinvestment in the health infrastructure and achieve other favorable outcomes (56).

In a recent cross-site case study of four CBPR partnerships in the United States that researched environmentalhealth problems and worked to educate legislators and promote relevant public policies, Minkler and colleagues (43, p. 134) identified several of the dimensions of community capacity listed in Table 3 as contributing to observed outcomes. These included "strong community (and community partner) leadership, participation, skills and resources to support the work, an ability to form and maintain social and organizational networks and

coalitions, and shared values thus were among the capacity dimensions that resonated well with the partnerships examined."

Community Capacity and Environmental Stressors

From this review of the literature on community capacity and community capacity building, various hypotheses can be proposed about the mechanisms by which increased community capacity can contribute to a community's increased ability to protect its residents against environmental stressors, as shown in Table 4. In each case, the underlying question is how does increased community capacity lead to greater citizen participation in decisions about addressing environmental threats to health.

Table 4 Possible Hypotheses about Relationships between Community Capacity and Protection Against Environmental Stressors

Increased community capacity builds community cohesion thereby increasing collective efficacy.
Increased community capacity enables a community to bring in new resources that increase its ability to protect residents.
Increased community capacity provides community residents and leaders with knowledge and skills that can be used to take action to reduce environmental hazards.
Increased community capacity allows a community to act more effectively in the political arena.
Increased community capacity increases a community's real political power and thereby its ability to exert more influence on behalf of its residents.

To date, the empirical evidence or studies needed to confirm or refute these hypotheses are lacking. It seems plausible that some pathways may lead to shorter term changes, e.g., increases in knowledge and skills, or short term gains in political power,

while others may lead to more lasting changes in community exposures. In addition, as we shall discuss in the next section, as shown in Figure 1, interventions to reduce exposures to environmental stressors can lead to changes in community capacity (Box C), changes in participation processes (Box D) or both.

4. Public Participation, Community Capacity&Environmental Justice

The task of organizers is to enhance power and improve capacity (Figure 1, Intervention Opportunity 2); the task of agencies is to make sure that public participation processes achieve democratic ideals by allowing those with less power a venue to discover and express their interests (Figure 1, Intervention Opportunity 3), as well as resources to improve their capacity and perhaps rebalance the power equation. Clarifying who has what responsibilities for strengthening capacity and improving participation may help to avoid charges of paternalism.

As Charnley and Engelbert show, improving participation processes is a challenging task (75) perhaps even more so for processes involving EJ communities. Aside from "technical" problems– different languages at play, different organizing capacities in place, etc., (Figure 1, Box C) -- such communities are suspicious if processes are perceived as really being about political manipulation, such as legitimating agency decisions (76). They are also often eager to add their own knowledge – local knowledge that can make the planning process more comprehensive – to the mix and exhibit concern when this is downplayed in the process (77,78,79). Finally, because they are often exposed to multiple hazards and social vulnerabilities (Figure 1, Box A), the boundaries between one sort of hazard and another are often soft -- which

leads to a special resistance when an agency responds to a community concern by indicating that a deeply felt problem is actually the responsibility of another agency. Thus, while traditional environmentalists have grown accustomed to working within jurisdictional lines, the EJ community places strong emphasis on democracy, holistic approaches, cumulative impacts, and collaboration (80), complicating the lives of participation managers in public agencies. Day provides an overview of these public participation complexities (81).

In this section, we examine the interplay of participation processes and community capacity in the arena of environmental justice and disparate exposure - the strength and dynamic of the feedback arrow between Boxes C and D in Figure 1. In its report, *Public Participation in Environmental Assessment and Decision Making*, the National Research Council has classified participation along four dimensions: breadth of participants involved, openness of design, intensity of effort, and influence of participants (76, p.116.). The NRC report also discusses different approaches to participation, including neoliberal theories that see participation as a way of soliciting preferences, deliberative approaches which seek consensus that change norms and preferences, and emancipatory views that see participation as a way for those with the least power in a society to gain voice.

Since we are most interested in the distribution of power, we are concerned most with the fourth dimension that the NRC identifies – participant influence – and situate ourselves as drawing on both deliberative and emancipatory theories. Given this, Box D names three potential participation processes – Potemkin, Kabuki and Authentic. While we describe each of these in more detail below, the basic idea is that Potemkin processes are purely formal and designed primarily to satisfy requirements or solicit information using the neoliberal approaches, Kabuki processes are designed to be staged conflicts between adversaries rather than

deliberative processes and are thus political in nature, and "authentic participation," when done well, can yield a shift in norms and an improvement in community voice. With the last of these our preference, we outline what is important to moving along the continuum from Potemkin toward authentic involvement.

We note as well that the participation process (Box D) can itself improve or diminish community capacity (Box C), something the National Research Council also found to be true (76). And while the conflict of Kabuki does involve some sharpening of skills, we think that authentic participation can do more to increase community control.

Forms of participation: From Potemkin to Authentic

The uncertain attitude about participation in some circles, including the sense that communities are simply too emotionally involved to make rational risk assessments has been played out in government agencies as what we call "Potemkin" participation (82). Referring to elaborate Russian villages that were simply shells of buildings – impressive to royalty passing through but empty up close – this sort of participation keeps participants at a distance, although technically allowing them to participate. Characteristics of this form of participation include the creation of advisory councils that are given little attention or funding by decision makers, something we note below in a California case (76).(p43) Such approaches are often perceived as participation for show not for effect (although it can at least solicit preferences from those who show up) and, as it turns out, they are often unsuccessful in realizing outcomes satisfactory to any participants. In the case of environmental justice, we think the risks of a Potemkin process are highest when agency personnel do not fully understand or appreciate disparities – and hence think of addressing these concerns as a burden – or have simply become accustomed to a process that amounts to placation rather than interaction and influence.

In Innes and Booher's study of public participation, they find both the public and the officials frustrated by such "Potemkin" processes (83). Matsumara, Van Valey and colleagues and Kihl think that formal hearings are too late in the process and leave little to be done but sign off on decisions already made (84,85,86). Public frustration, among other factors, then leads to lower attendance and unrepresentative public feedback (75,79). The skewed, scattered, and one-way feedback becomes difficult to incorporate, and there is rarely any accountability for doing so (75). Public officials thus gather neither significant nor systematic information from the process, partially because monologues, not conversations, ensue. Anyone who makes a public comment is made aware of their lower level of power by the sheer set-up of the room, and they are unlikely to know if their comments will actually be incorporated. Thus, the public is not satisfied by this process either, and those once involved in the conversation, however conflictual, eventually leave these organized venues for the courts and other institutions (76, p. 12). Putnam and Pharr found that as a result of this frustration, public participation in the US has been on a constant decline – the public is deterred and public officials see little point, at best, and at worst, the two parties fight for their point but find little common ground – what we classify as Kabuki participation (87).

Kabuki participation refers to a stylized interaction, drawing on the classic Japanese drama in which overacting is coupled with elaborate make-up to make an impressive but artificial appearance. Here this refers to the staged conflicts that occur in many formal participation processes in which battling experts are expected to each state their positions and argue their cases without a collaborative search for true common ground. In environmental justice circumstances, a Kabuki process can be the extension of – or result of – a Potemkin process. An unfortunate example comes from California where the interplay of political,

traditional environmental and environmental justice dynamics has resulted in a lawsuit regarding the implementation of AB32, the state's Global Warming Legislation.

As Sze and colleagues note, AB 32 required the formation of an Environmental Justice Advisory Committee (EJAC) to protect vulnerable communities and the poor from disproportionate health impacts but the reason was partly rooted in a political effort to keep EJ communities concerned about cap-and-trade from derailing the legislation (88). The California Air Resource Board (CARB) was tasked with implementing AB32 and, in doing so, to consider the recommendations of EJAC. Faced with the rush to develop a Scoping Plan - essentially the blueprint for how CARB will implement AB32 – CARB provided significant assistance to the Market Advisory Committee designing market mechanisms but very little to EJAC. EJAC, meanwhile, utilized its role to make clear the strong opposition of its members to cap and trade. Little common ground was found and in June 2009, various members represented in the EJAC sued CARB.

Both of these processes can be contrasted to the ideal of "authentic" participation. In two recent books, *Street Science* and *Toward the Healthy City*, Corburn offers a new vision of "public processes . . . structured to allow the least powerful, politically disenfranchised to meaningfully participate. In order to accomplish this, a distribution of extra resources, assistance and guidance to disenfranchised groups may be necessary in order for meaningful and fair public deliberations" (89, pp. 42-43). Corburn notes that it is difficult because a particular vision of science and rigor is privileged in such processes and he argues for a full incorporation of community in the co-production of knowledge, noting through a series of examples that such "street science" will contribute to the overall scientific base and itself become more rigorous

through interactions with agencies and academics. Moreover, such "street science" deals directly with the meaning and exercise of power in the research process (89, p.42.).

Corburn's 2009 volume on the "Healthy City" offers insights in two arenas key to our considerations (90). First, he reviews in detail the Eastern Neighborhoods Community Health Impact Assessment (ENCHIA), a San Francisco-based effort that brought together local agencies with residents in a successful planning process. While there were many important characteristics to this process, including the willingness to listen to all views, perhaps one of the most important was the use of a Health Impact Assessment model that did not focus on simply what was in the jurisdictional authority of zoning or health agencies or factors forced into consideration by a formal Environmental Impacts Review but rather a determination of the elements that help produce neighborhood health – in short, a cumulative and holistic approach.

Corburn also considers how these more inclusive practices moved across and scaled up to the region. He details how lessons learned from the ENCHIA process migrated to work in the city of Richmond and also notes a broader incorporation of communities in zoning and general plan processes, including the evolution of region-scale efforts such as the Bay Area Regional Inequities Health Initiative and the Great Communities Collaborative (90). Fortunately for the Bay Area, there was some infrastructure, including existing community-based regional organizing efforts, to pass along best practices; this raises interesting issues about how sharing lessons about participation and community capacity can be facilitated by a federal agency like the EPA.

What makes for good participation?

Based on our experience and this review, we identify three basic strategies that can help promote more authentic participation: get people involved early, provide them with resources so they can fully participate, and insure that the outcomes reflect their participation.

Get people involved early

It is clear that when people are engaged in the first steps of a process, they have more confidence that they will be taken seriously. The need for early involvement by both decision makers and stakeholders is already recognized by the EPA in its handbook on *Planning and Scoping for Environmental Risk Assessment* (91). While this is a general precept, part of the start-up issue with environmental justice and disparate exposures may be proper identification of which communities to involve. At the national level, the EPA has been developing a GIS-based method called the Environmental Justice Strategic Enforcement Assessment Tool (EJSEAT) (92).This tool seeks to systematically identify areas with potentially disproportionately high and adverse environmental and public health burdens in a way that is comparable between states and EPA regions. EJSEAT organizes its metrics into four categories (demographic, environmental, compliance, and health impact), and then applies to each census tract a composite EJSEAT score. The EPA envisions EJSEAT as a means for both defining and identifying "environmental justice communities", with a planned internal use to inform EPA's own enforcement activities.

Working under contract to the California Air Resources Board, Pastor, Morello-Frosch and Sadd have developed an alternative strategy for California that identifies communities along three dimensions: hazard proximity, air quality, and social vulnerability (93). The resulting maps point to communities where organizing has already occurred but also to places at risk but that

have not yet been the subject of organizing. What is important here, however, is the process by which this strategy was developed. Adhering to EJ values of democratic participation, the research team consistently integrated the feedback of grassroots community leaders in their data collection, methodologies and interpretation. In particular, they partnered with Communities for a Better Environment (CBE), a California-based grassroots environmental justice organization with whom the researchers had worked for years. Morello-Frosch and colleagues have also described a previous collaboration (94). This experience, while still in process, represents a useful collaboration between researchers, organizers, community leaders, and agency personnel. See Box 2 for a brief description.

In another collaboration, San Francisco stakeholders have been using a Health Impact Assessment to involve the community upfront in public decisions to minimize health disparities on disadvantaged populations (95,96). These and other collaborative experiences like WE ACT in West Harlem, profiled below, suggest that rigorous research methods can be compatible with specific efforts to increase community capacity and collective efficacy. Moreover, by working in coordination with a government agency, the community may be able to build trust and stand behind methods to address environmental justice concerns. On the other hand, it requires a level of openness – not simply of open public meetings but an invitation to groups to play a role in generating the research – that may require a cultural change for public agencies. Finally, this approach may help EPA and other agencies to identify early those communities that are most affected by disproportionate exposure and who could most benefit from capacity building support.

Box 2 Screening for Environmental Justice

Pastor, Morello-Frosch, and Sadd have developed an "Environmental Justice Screening Method" (EJSM) for Southern California that integrates dimensions of cumulative impact and social vulnerability and can be used as one basis for determining whether areas could be a priority for outreach and participation in decision-making (93).

The EJSM first considers proximity to known hazards, utilizing point source information on facilities releasing toxics or land uses identified as problematic from an air quality perspective (such as rail yards and airports). This is combined with information on sensitive land uses, such as schools, health care facilities and child care centers to derive a score for land parcels based on intersecting land use and proximity information with block level population counts. Using a simple buffer procedure to add more weight to closer hazards and population counts to consider likely impact on people, these parcel level scores are then used to calculate an average at the census tract level.

The EJSM adds to proximity metrics information on potential pollutant exposures or possible human health risks. This dimension of cumulative impact is derived from air-related measures of potential health risk, including ambient criteria air pollution exposure and cancer and respiratory hazards associated with modeled air toxics estimates. A third dimension is based on a range of social vulnerability indicators, including percent of individuals below poverty, linguistic isolation, the age structure, and other measures common in the literature. Each of the three dimensions is simply ranked into quintiles, then added up to create a cumulative score that approximates a normal distribution.

The EJSM is transparent (partly because it relies on intuitive scoring strategies like quintile rankings), and it is easily adaptable and altered by agencies and sophisticated outside users who might wish to consider other factors, add new data, or weight some factors more than others. As constructed, it is limited to Southern California because of the land use data requirements for the proximity measures but it does provide a guidepost for other efforts. An important caveat is that it is also currently limited to air quality measures. Moreover, it is a screen not an assessment: it indicates where communities are overexposed and socially vulnerable and thus where agencies might want to especially improve their outreach effort to insure that all voices are heard in the decision-making process.

Provide resources and information

Given our emphasis on power, community capacity and participation, WE ACT (West Harlem Environmental Action), a community-based group on the cutting edge of using research to change policy and build community capacity, provides useful examples of how this can work (97). WE ACT began as a community-based participatory research (CBPR) effort when its leaders "realized that the lack of scientific literacy, information, data, and context was a serious

void that contributed to the systemic exclusion of communities of color from decision-making" (98).WE ACT thus sought a relationship with Columbia University and began researching their suspicions – with the research findings often substantiating their fears that they bear "the lion's share, not the fair share" of burden (97, p. 28).

Funded by the W. K. Kellogg Foundation, WE ACT and Columbia University Center for Children's Environmental Health (CCCEH) equipped seventeen youth (the Earth Crew), with the assistance of epidemiologists, to study diesel particulates (63). The data collected stood up against the EPA's own ambient air monitors and suggested that community concerns were well-placed. It also contributed to an organizing victory, cleaning up local bus emissions, and "played a key role" in convincing the EPA "to undertake regular air monitoring in Harlem and other previously unmonitored andhigh-risk locations in Northern Manhattan and in other urban areas nationwide" (63, p.107). WE ACT has gone on to play key roles in the New York State Environmental Justice program, the EPA's National Environmental Justice Advisory Council, and has contributed to the field of CBPR. Although community-based participatory research is not the silver bullet for changing policy (99), these examples show that providing resources so that communities can step forward with their own information and their own perspectives is critical in decreasing cumulative impact.

The EPA already has a wealth of programs that try to improve the resource, informational, and capacity base of community-based organizations, including the Community Action for a Renewed Environment (CARE) program and the Environmental Justice Small Grant program. Both the Superfund Program and the Brownfields Program also provide specific technical assistance grants for community groups. The EPA also has an Environmental Justice Collaborative Problem-Solving Cooperative Agreements Program, although that seems to be

currently less active. Expanding funding for all these efforts and expanding their reach would be a positive step as well as continuing to fund innovative alliances between university-based and community researchers as in the WE ACT example.

Another way that EPA might provide information that could strengthen participation is to clarify the role that the public can play in various types of decision making processes. For affected publics, the jurisdictional lines of authority – locals control land use but federal and regional entities regulate air pollution – seem both vague and unsatisfying: people live in communities not jurisdictions. By specifying the type of contribution that can influence various policy decisions but by being aware that other issues will inevitably arise in public participation processes, the EPA and local entities, particularly if they work together and share information, can help create a more productive and welcoming environment for community members and collect a broad range of views that can inform and improve policy in multiple domains.

Insure that the outcomes reflect participation

While a fair process might be defined as one where there were opportunities for community members (or their representatives) to participate meaningfully and be taken seriously, for many communities, the test is not simply whether they were heard but whether their words had impact on decision-making (76).[(p.60)] Leaving outcomes unchanged can convey the impression that community input was not considered and that existing power relations dominated the process. This is especially important for grassroots groups; according to an analysis by Webler and colleagues those communities most concerned about disproportionate power in the process also tended to be those with the most local ties (100). Chess and Purcell note that the failure to incorporate feedback affects the legitimacy of participation processes

(101). Thus, attention to outcomes, which gets at the balance of powerand the degree of empowerment in any participatory process, will be particularly important for disadvantaged communities. This is not to say that every community concern need be fully addressed – but that when they are mostly overlooked, the process can feel inauthentic and undermine trust.

A positive example comes from National City (near San Diego) where in 2009 the city included a full "Health and Environmental Justice" element to their general plan – a first for California (102). The Environmental Health Coalition (EHC) counts this as a victory that was achieved through informal conversations with council members and their staffs along with public comments read at hearings. Among the factors facilitating this process were the soon-to-be released federal and state level funding for EJ, the relationships that had been built between EHC staff, community members and the council, and previous campaigns that helped put environmental justice on the regional agenda.

An old Alinsky axiom is that people are more motivated when they win. Changes in outcomes indicate that the community has grown in power. Throughout the course of a successful "authentic" participation process, communities grow in their technical knowledge, their civic tools, and their relationships with policymakers (72, 103). Influencing the outcomes validates these abilities and provides the motivation for the next campaign, creating a virtuous cycle of participation (104). Both EHC and WE ACT did not stop after their first victory, but moved on to more complicated struggles and negotiations – and have frequently won (94,p. 28).This does not mean that communities will or should always get their way – but whether win or lose, a good process will hone strategies and build community capacity. In all instances, it is important that participation is seen as having an effect on the decision making.

5. Looking Forward: Directions for the EPA

In this report, we have made the case that community capacity can help a community to reduce the level and impact of environmental stressors. If this premise is valid, how can this capacity be enhanced? What are the strategies that could address the concerns of environmental justice communities – and what would make the participation processes more "authentic"? Can we identify places where enhanced capacity is needed – and can all this be done from Washington?

Our earlier analysis identified ten important domains of actionto strengthen community capacity, including leadership, participation, skills, resources, social and organizational networks, sense of community, understanding of community history, community power, and community values. Our review of the specific literature on environmental justice and disparate exposures suggested three additional domains that are particularly promising for interventions - community cohesion, language capacity, and community information. In addressing all of these domains, we proposed five basic strategies for enhancing community capacity, including training and technology transfer, technical assistance, community-based participatory research, empowerment approaches, and community organizing/social action.

We believe that each of these capacity-building strategies offers some promise for helping EJ communities to address their concerns. We would note that capacity-building strategies that give more control to communities (e.g., CBPR, empowerment, and community organizing) may more fully address the fundamental causes of environmental disparities – which stem from the lack of political power – than more agency-controlled processes (e.g., training and technical assistance). However, these community-driven strategies are more labor and resource intensive and require a higher level of commitment from communities, researchers and agencies,

as well as a new set of capabilities on the part of agency personnel with regard to the skills needed to, for example, facilitate meetings, communicate clearly, and create an atmosphere of inquiry and trust.

In some cases, resources (either financial or personnel) may be insufficient for the more intensive approach and more limited strategies may be all that is feasible or may serve as a starting point for what could become a deeper more fundamental process of change. Even in those contexts, this analysis provides a broad array of choices from bottom-up and agency-down intervention to increase capacity; with many of these described more fully in the National Research Council's report on public participation in environmental decision-making (72). Careful documentation and evaluation of such efforts will help to establish a systematic body of knowledge that can help to make informed choices and match interventions to community contexts. In addition, more study is needed to consider how best to blend and integrate interventions to increase capacity (Box C in Figure 1) with those to improve participation processes (Box D in Figure 1).

On the participation side, we highlight the following principles to help agencies move from purely formal and conflictual processes – what we earlier termed "Potemkin" and "Kabuki" participation – to a more authentic and collaborative approach. These principles, drawn from both the analysis here and earlier work (105), include:

1. *Start the involvement early*. We have noted the importance of this above and it is clearly one of the principles in the EPA's own handbook on "planning and scoping." We would suggest that one way to do this is the further development of screening methods that can identify EJ and overburdened communities as a way of focusing outreach efforts. In these areas, one logical starting point for involvement is identifying existing independent

environmental justice organizations in the region; if none exist, other trusted local organizations (e.g., human service or civil rights groups) may serve as the starting partner.

2. *Make time tobuild trust*, particularly when there has been some existing strain between community groups and agencies.This will require a commitment of time and personnel and, as noted above and directly below, a set of skills on the part of agency leaders that are not often part of prior training.
3. *Create effective mechanisms to listen* to community concerns, including neutral facilitation. This can include less formal venues and workshops, places where conversation and information sharing can replace the positional dynamics of most formal public forums. This itself requires patience due to the common disconnect between what the community hears and understands from the messages of multi-layered agencies and the actual realities behind the messages.Representatives who have the first contact with the community should anticipate some misperceptions and confusion that will be the source of frustration and even misinformation. Both agencies and communities need to develop channels of communication that acknowledge but do not expand and replicate inequitable relationships.Again, training of agency personnel as well as outside experts in the art of meaningful public participation could be helpful since capacity for participation needs to be built by all entities involved.
4. *Develop culturally appropriate outreach processes and materials for the community to reach* underrepresented populations. This includes paying special attention to materials in languages and technical level that are accessible

5. *Demonstrate institutional support by making government /agency resources available,* including assistance in building the capacity for effective participation by communities. The EPA has some model programs doing exactly that and these should be continued and expanded. An additional avenue would be to provide existing independent environmental justice organizations that have a track record of success with the resources to build capacity of other organizations and communities in their region.
6. *Adopt the viewpoint that the community is beneficial to the process*. Communities know when participation is begrudging or "reluctant'. Thus, it may be necessary to train agency personnel about the ongoing realities of disparities, which some may doubt or simply see as misperception. In addition, the value or specific benefits of participation may vary by EPA function. Thus, the form participation takes in making decisions about siting, rule-making, standard setting and regulation may differ. By developing internal guidelines that delineate the value of participation in each, EPA may be able to assist its staff to invite useful participation more effectively.
7. *Include community in the co-production of knowledge*. Whether that be as fellow researchers, as experts in local knowledge, or as people who can shape a project so that it garners more support, this will improve the research base for discussion and should extend participation beyond the perfunctory "public comment" period.
8. *Adopt a cumulative impact approach as much as feasible*. The reality for EJ communities is that of cumulative impact. We have a system that regulates facility-by-facility when the problems are generally neighborhood-by-neighborhood. There is a gap between institutional and neighborhood realities and siloed responses by particular agencies which may be procedurally accurate but frustrating to community members

simply looking to improve their environment. For example, to save communities from the frustrating practice of having responsibility for a problem they are trying to solve bumped to another level of government may require coordinating across jurisdictions and levels of government. This also applies to sectoral responsibilities within the federal government. Given the important role of the built environment in determining community risk, the Department of Housing and Urban Development and EPA need to interact regularly to speak in consistent voices to affected communities.

9. *Maintain participation over time so that sustained com*mitment is evident; this is especially important, as it will allow individuals and groups who may be frustrated by one set of decisions to believe that policy conversations will continue to occur and include their voices.
10. *Evaluate participation using clear measures and markers*. Independent evaluators should be hired to do ongoing and interactive evaluation of agency public participation practices. These practices, at some point, should be made available in writing to the public and agency leaders for feedback and improvement.
11. *Take action to make change* based on the feedback received in the participation processes. While the fairness of a process is important in its own right, when officials adopt the suggestions of less powerful constituencies, it shows that they have heard community suggestions and taken them seriously.

We realize these are lofty principles, high standards, and ambitious tasks for agencies often straining to meet regulatory mandates. Authentic participation requires trust, time and often a willingness to tolerate dissent. Sometimes processes will fall short, and conflict will

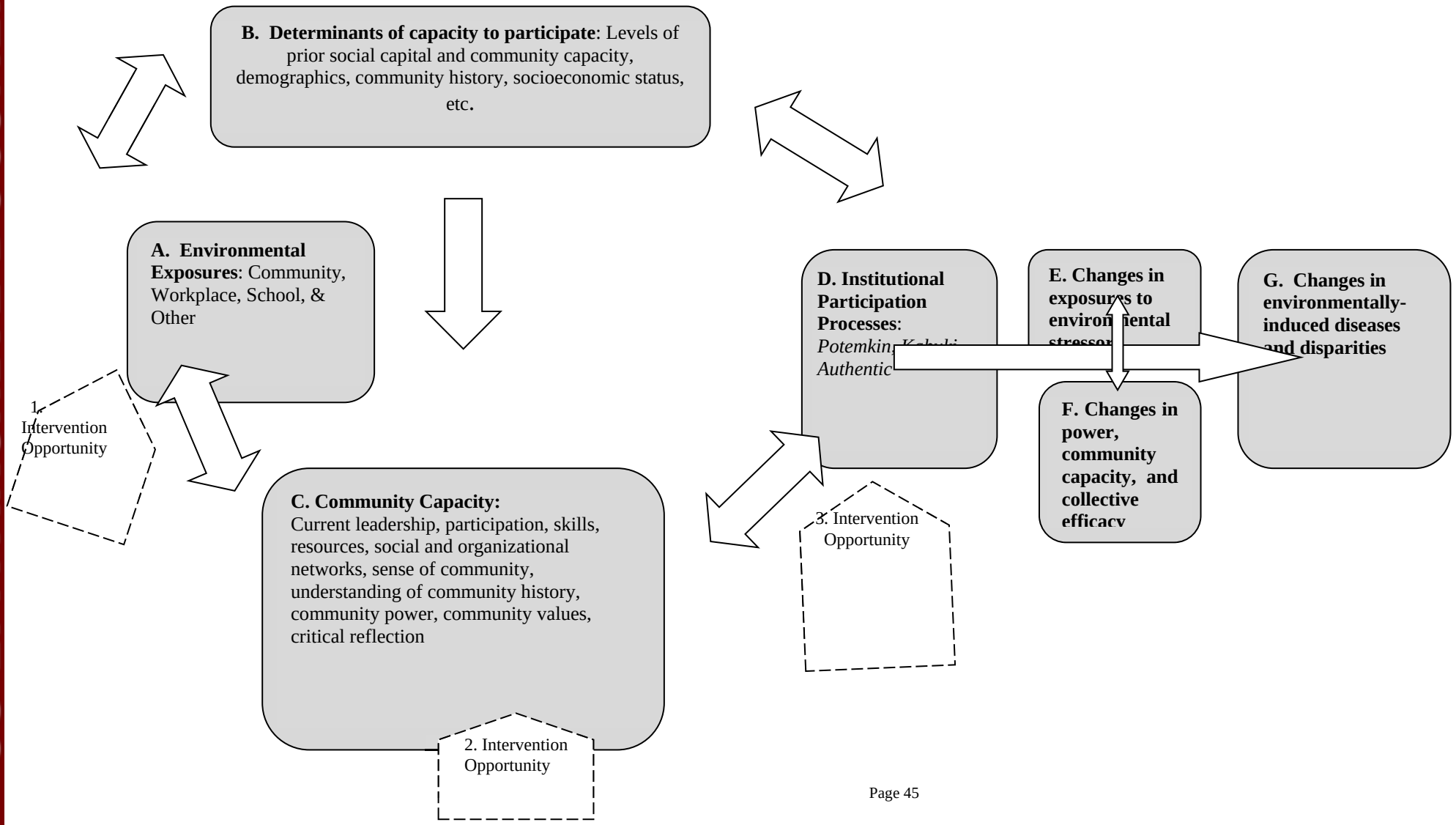
inevitably result. But the US EPA does have striving towards authentic participationand we suggest that these are ideals which agencies, communities, and others should work to achieve as they move along the continuum from Potemkin to authentic participation.

This brings up an interesting question of scale – that is, what can and should be done from Washington? While we think the regional scale is important, partly because issues of disparity in exposure are, by nature, regional, it is important to have national policy and national standards. On the policy side, eliminating hazards before they threaten human health is EPA's most basic mission and targeting EJ communities for primary prevention is the surest strategy for reducing current and future disparities in health. We have not focused on this level of prevention (shown as Intervention Opportunity 1 in Figure 1), but it is the foundation for successful community participation. Adopting guidelines that prohibit making already disproportionately burdened areas more burdened could be a sign of good faith that will foster further participation and engagement.

We also recommend that it would be useful to further revitalize the National Environmental Justice Advisory Committee (NEJAC), a group that includes representatives of community, academia, industry, environmental, indigenous, as well as government and tribal groups. The NEJAC was convened in an effort to create a dialogue that can define and "reinvent" solutions to environmental justice problems. The importance and prestige of NEJAC fell during the previous administration, a process that may now be reversed. Finally, we think there may be special opportunities to include EJ voices in newly developing issue areas, such as climate change, particularly since some of the proposed mitigation strategies, including cap-and-trade systems, run the risk of potentially creating further disparities (106).

We have stressed throughout this paper the role of community capacity, authentic participation, and democratic power. Ultimately the hope is that by enhancing each of these, we will alter the demonstrated pattern of disparities that underlie the environmental "riskscape" of America – not by redistributing risk but by minimizing it in each of our communities. Indeed, empowering communities may be one of the best regulatory mechanisms possible. Thus, strengthening participation – by helping communities develop the capacities needed to be effective in such processes and by changing agency practices to better incorporate such voices – will be a key and proper task for EPA in the years ahead.

Figure 1 Conceptual Model for Community Participation's Impact on Environmental Exposures



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