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Building Capacity for Disaster Resiliency in Six Disadvantaged Communities

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Abstract: Disaster plans almost always do not benefit from the knowledge and values of disadvantaged people who are frequently underrepresented in disaster planning processes. Consequently, the plans are inconsistent with the conditions, concerns, and capabilities of disadvantaged people. We present an approach to community-based participatory planning aimed at engaging marginalized and distrustful communities to build their capacity to be more disaster resilient. We review the experiences of six disadvantaged communities under the Emergency Preparedness Demonstration (EPD) project. The EPD effort revealed several critical implications: recruit a diverse set of participants for inclusive collaboration; provide analytical tools to co-develop information and empower people; employ coaches to organize and facilitate sustainable community change; design a bottom-up review process for selection of strategies that holds communities accountable; and build capacity for implementation of strategies.

Keywords: disaster planning; resiliency; disadvantaged communities; social vulnerability

1. Introduction

The 2005 Hurricane Katrina offers a vivid portrayal of the inequalities of disaster planning in American society [1-4]. While the inequalities may have been news to some, they were not news to the displaced people in many communities along the Louisiana, Mississippi, and Alabama coasts. If the people in the poor wards of New Orleans had been consulted, they would have easily identified the significant weaknesses of the evacuation plan. They would have said that most of those without cars—the elderly, the disabled, the poor, and ethnic/racial minorities—would not be able to leave [5]. The Hurricane Katrina case is indicative of many other vulnerable communities across the nation as their disaster plans do not benefit from local knowledge, and are inconsistent with local conditions, concerns, and capacities of disadvantaged people [6].

Addressing the deep disparities requires building capacity for improving resiliency to sustain human communities in the face of increasing vulnerability from hazards. Peacock *et al.* define resiliency as “the ability of a...community, to resist or absorb the impacts of natural hazards, to rapidly recover from those impacts and to reduce future vulnerabilities through adaptive strategies” (p. 5, [7]). Olshanksy and Johnson (Chapter 10, [8]) refine this definition by contending that communities make choices in seeking to balance the need for rapid recovery with deliberation to maximize opportunities for safer, better, and more equitable community. Manyena [9] also argues that resiliency is rooted in choices with a specific focus on how choices affect the vulnerability of built and natural environments, and local capacity to organize, adapt and respond to disaster impacts.

In light of these definitions, public engagement is essential to enhancing community resiliency, but the problem of general apathy in disaster preparedness and mitigation constrains participatory initiatives [10,11]. The problem is especially serious for disadvantaged groups who often face racial discrimination and class inequalities, and the uncertainty, distrust, and suspicion that accompanies these conditions [12,13].

In this paper, we describe a community-based participatory planning project aimed at building disaster resiliency of disadvantaged communities. A disadvantaged community consists of key social and economic characteristics that create a disproportionate susceptibility to harm from disasters and constrain capacity to respond (Chapters 2&3, [3]). For this paper, we engaged disadvantaged population groups that were identified as consisting of two or more characteristics that include racial/ethnic minority, low-wealth, and poverty. Within these population groups we also accounted for other characteristics including the elderly and physical disabilities. The project was undertaken by the authors of this report who formed a partnership that included community development planners at MDC Inc., a private non-profit organization, and the faculty and students of the University of North Carolina.

The purpose of the project was to collaboratively produce community-based disaster plans tailored to meet locally defined vulnerability issues and premised on local capacity to implement the plans. While this objective is not new to the disaster planning field, there is a gap in knowledge in disaster planning focused on disadvantaged people and the deep disparities in resiliency. We attempt to close this gap, in part, by seeking to answer to the following question: What are the strategies for guiding disaster planning to reduce vulnerability and build resiliency in disadvantaged communities? Specifically, we explore ways to identify and recruit disadvantaged people into the disaster planning

process, adapt conventional vulnerability assessment methods to engage disadvantage people as co-developers of information, bring together disadvantaged people to agree on a course of action, and devise standards that can be used to hold local people accountable to implement plans.

We initially describe the roots of an Emergency Preparedness Demonstration (EPD) project aimed at building capacity for disaster resiliency of six disadvantaged communities in Delaware, Maryland, North Carolina, Pennsylvania, Virginia, and West Virginia. We then discuss the community selection process, and data collection and analysis procedures used to assess the capacity building efforts in EPD communities. Next, we chronicle five critical lessons learned based on the EPD experience. The lessons serve as strategies that offer guidance for prospective non-profit and university collaborative initiatives engaged in planning for disaster resiliency of disadvantaged communities. Finally, we offer conclusions about the successes and failures of the EPD experiences.

2. Conceptual Understandings of Community Capacity Building for Disaster Resiliency

Issues of capacity building for disaster resiliency of disadvantaged communities are reminiscent to the shortcomings of urban renewal programs in the 1950s and 1960s. In reaction to overemphasis on top-down solutions premised on bricks and mortar, community activist Saul Alinsky [14] argued the neighborhood development efforts should be designed to coordinate federal assistance for the poor at the local level to have maximum impact. Assistance should foster the development of truly comprehensive revitalization plans and programs that address local social, political, and economic issues, in addition to physical development. Alinsky emphasized that “it is the most common human reaction that successful attainment of objectives is much more meaningful to those who have achieved the objective through their own efforts” (p. 174, [13]). Civil rights organizing in the 1950s and 1960s also inspired the emphasis on community organizing and citizen involvement in community action programs [14].

Breaking down barriers to disaster resiliency hinges on community planning that embraces the idea that public officials, local people, and independent mediating organizations work together in a process aimed at building community capacity to engage, organize, and take action on locally defined priorities [15]. The most striking feature of building capacity for disaster resiliency lies less in the use of specific techniques and methods, but in who defines vulnerability problems and who generates analyses, represents, owns, and acts on the information which is sought [1,9]. Asking the *who* question enables planners to look more closely at what is meant by the capacity to engage. Rather than just taking part, the focus is on the central issues of influence and control in formulating and acting on choices.

We use the collaborative planning model to serve as the conceptual foundation to guide our approach to building community capacity for disaster resiliency in the EPD communities [16-19]. In the ideal of the collaborative model, stakeholders that represent different interests engage in dialogue, work through joint fact finding, learn from each other, and co-evolve in defining problems and taking actions. We extend the collaborative model by drawing on the relational model derived from community organizing practices that emphasizes face-to-face interaction that is fundamental to building trust that enables collective action [20]. Trust is built internal to the community, and through cultivation of allies external to the community who have resources to empower the most marginalized [20,21]. We also draw on the accountable autonomy model that gives attention to

disadvantaged groups in developing their own plans, but with standards for accountability to achieve the broader community-based aims [15,22]. The concepts of accountability and autonomy are mutually reinforcing. Autonomy means independence from centralized power, and the opportunities for local people to define and act on their own ends. Accountability is centralized action that builds local capacity without improperly and destructively encroaching upon it.

A capacity building strategy for disaster resiliency achieves a balance between: engagement of local people to define needs and external authorities with access to outside resources to meet the needs; expert knowledge and local ordinary knowledge; and proposed activities that fit values of underserved populations and accountability to broader community goals. It also emphasizes relational organizing by coaches (or facilitators) to mediate conflict, cultivate new connections, and foster comprehension of alternative viewpoints.

3. Roots of the Emergency Preparedness Demonstration Project (EPD)

In 2004, MDC and the university initiated a partnership called the Emergency Preparedness Demonstration (EPD) project with support from the Federal Emergency Management Agency (FEMA). MDC has served as a mediating institution for over four decades on work that aims to strengthen underserved communities and foster relations with external organizations that can infuse communities with needed resources and expertise. The university group consisted of a core of investigators with expertise in anthropology, public health, and urban planning, and considerable experience in hazard vulnerability analyses and disaster planning.

Between 2005 and 2008 the MDC/university partnership initiated and completed six community-based demonstration projects aimed at creating disaster plans and taking action to implement prioritized strategies. We were well aware of the long history of deep disappointment in past externally-driven initiatives, especially those associated with university and government researchers, which had failed to produce significant physical development improvements and social programs benefiting distressed communities in the arenas of community development [23], environmental justice [11], and disaster resiliency [3]. This history prompted the MDC/university partners to pursue a bottom-up, participatory action research approach to disaster planning.

Key features of this approach included the establishment of a core planning team in each of six EPD sites, the employment of three coaches to work with the six teams, and financial support. Each core planning team was to represent the diverse interests of the community, provide local knowledge about disaster issues, and formulate solutions according to their own priorities. Coaches served as technical advisers, facilitators, and catalysts for change, and exercised a diverse mix of skills (communication, consensus building, mediating, visioning, technical competence, advocacy) needed to motivate collective action. During the initial phase, each EPD community received a \$15,000 planning grant to cover time of a site coordinator (supplied by a community-based organization active on the core planning team) to support recruitment, arrange meetings, assist in data collection, and disseminate information. In addition, a \$25,000 grant was then made available to serve as an incentive for keeping teams committed throughout the process.

4. Methods

4.1. Site Selection

To test the efficacy of our participatory research approach, our fieldwork focused on communities that were selected based on the following procedure. Initially, disadvantaged communities within the 2003 Hurricane Isabel impact zone were identified using census data on socio-economic characteristics. The impact zone covered areas that sustained moderate to severe damage extending along the Atlantic Coast from South Carolina to Maine and as far inland as West Virginia.

Next, a preliminary list of communities was developed and reviewed by staff from state divisions of emergency management and FEMA to identify the best candidates based on potential barriers and opportunities to working with such communities, and the commitment and capacity of communities to participate in the demonstration project. Site visits were then conducted by the MDC/university team and included exploratory meetings with a diverse set of local representatives in potential communities, to determine the willingness and ability of the communities to participate. Six communities were selected from rural and urban areas: Chester County, PA; Dorchester County, MD; Hampton City, VA; Hampshire County, WV; Hertford County, NC; and Wilmington, DE.

Table 1. Social and economic characteristics of selected communities.

Characteristics	Chester Co., PA	Dorchester Co., MD	Hampton City, VA	Hampshire Co., WV	Hertford Co., NC	Wilmington, DE	U.S.
Pop. size 2009	498,894	32,043	144,236	22,695	23,283	73,826	
Pop. growth 2000–09	15.1%	4.1%	−1.5%	12.3%	1.3%	0.6%	9.1%
Pop. profile 2009							
White persons	83.7%	68.0%	47.1%	96.2%	36.0%	30.7%	65.1%
Black persons	6.4%	27.8%	47.8%	1.4%	61.3%	58.2%	12.9%
Hispanic persons	5.5%	2.5%	4.1%	1.3%	2.1%	6.9%	15.8%
Other persons	7.4%*	1.7%	1.0%	1.1%	0.6%	4.2%	6.2%
Median HH income 2008	\$85,547	\$43,288	\$47,301	\$37,913	\$34,131	\$39,154	\$52,029
Poverty rate 2008	5.8%	14.3%	14.2%	14.9%	22.7%	24.2%	13.2%
Census area	Metro-county	Micropolitan county	Metro-city	Rural county	Rural county	Metro-city	

*3.7% of residents include Asia persons. Other local jurisdictions have an Asian population of 1.8% or less.

Source: U.S. Census Quick Facts [24].

Table 1 illustrates the social and economic characteristics of the selected communities. It is clear that the selected communities are distressed. All communities, except Chester County, show signs of economic deprivation as median household incomes are below the national average and poverty rates are above the national average. There is variation in geographic settings, race and ethnicity, and population size and rate of change. Majority black communities include rural Hertford County, and the cities of Hampton and Wilmington. Majority white communities include suburban Chester County,

rural Hampshire County, and micropolitan Dorchester County. While the demographic characteristics suggest that Chester County is comparatively better off, interviews with state and local emergency management staff revealed that there is a sizeable low-income minority population (black and Hispanic) in the county that suffered loss during Hurricane Isabel.

4.2. Pilot Community

In the beginning, the MDC/university partners decided to initiate on-the-ground work in 2005 with a pilot community (Hertford County, NC). The aim was to concentrate planning efforts initially within a single community to enable a learning process in project design. Team members hoped success in a pilot project would offer lessons to refine work in subsequent EPD sites that would lead to wider success, and, over time, produce a wider movement for reform. Planning in Hertford County lasted about 18 months, while the remaining sites were more short-term that lasted approximately 9 to 10 months.

4.3. Participatory Action Research and Interviews

We used a participatory action research (PAR) approach throughout the EDP planning process [25]. We worked with each community in identifying issues, initiating studies, and facilitating actions. In collaboration with community members we continuously reflected on learning from the actions and proceeded to initiate new actions. Our reporting of findings reflects what we learned.

We supplemented the PAR approach with semi-structured interviews conducted between September 2007 and March 2008 with 30 key informants from the six EPD sites. Informants were individuals who were knowledgeable and influential about disaster vulnerability and community development efforts in their respective communities, and were participants on the core EPD planning teams. We interviewed four categories of informants: 9 representatives from community-based organizations (e.g., churches, neighborhood groups), 8 officials from local government agencies (e.g., emergency management, social services, health, neighborhood planning), 6 unaffiliated residents, and 7 informants from external organizational representatives from state agencies and national humanitarian aid organizations (Citizen Corps, Red Cross, United Way). At least one informant from each category was interviewed from each participating community. An interview protocol was used that included questions designed to gauge success (and failure) in recruitment of key participants, internal and external relationship building, coaching, formulation of strategies, and prospects for implementation. Content analysis of transcribed interviews was based on standard coding procedures [26].

5. Disaster Planning in Disadvantaged Communities

The following discussion synthesizes the experiences in the form of lessons-learned from the six community-based EDP projects. We frame the lessons as strategies for guiding disaster planning to reduce vulnerability and build resiliency in disadvantaged communities.

5.1. Adaptive Recruitment and Engagement Early-on

The EPD experience revealed the need to recruit strategies aimed at building a diverse and representative network of supporters early-on in the planning process. Successful recruitment required personal contacts that were facilitated by trust and one-on-one relationships, but also required adaptation of recruitment strategies to fit the local situation. In some cases, recruitment of EPD participants was facilitated by strong pre-existing networks of people. Hampton City, VA, for instance, initiated an EPD with a lead organization—Hampton City Neighborhood Unit—that had been operating for nearly 20 years. According to the coach of this site, the Neighborhood Unit had “deep networks...lots of contacts, lots of trust, and person-to-person relationships... that could be used to energize people into action.” Because the relationships were highly functioning, the groundwork undertaken in other EPD sites was not necessary in Hampton City. The recruitment strategy was multi-pronged with potential participants identified early-on during meetings, invitations were then issued by email or personal contact, followed by face-to-face contact from a long-time staffer in the city’s Neighborhood Office who was highly respected in the community.

In contrast, a highly developed social network was not present in rural Hertford County, NC. The lead organization in Hertford County—Roanoke Economic Development, Inc. (RECI)—initially relied on a single person who was energetic, very engaged in the process, and immersed in the subject matter, but was new to the area and did not have a well-developed network of relationships with residents. To assist recruitment of members for the core planning team, the coach and RECI staff member decided to personalize the recruitment process by employing three long-time residents to recruit highly respected individuals that were not formally affiliated with a particular group and representatives of community-based service providers (e.g., churches, child care services, and the housing cooperative). In addition, the core planning team approached the county manager to assist in recruitment, the manager then used her influence by personally tasking key representatives of county agencies, notably emergency management and health, to participate.

In Dorchester County, when low-income residents of Hispanic origin were not attending officially sponsored events in the basement of the county courthouse efforts were made to meet parents of children at Head Start Centers. According to the coach at this site, because these Centers “are culturally safe places and great generators of trust...parents were more willing to attend meetings and reveal personal information about the needs and capacities of their families to cope with crisis.”

Some efforts in engagement were not as successful. Each EPD was cautioned by the MDC/university partners that their efforts would unravel if they failed to be inclusive, and that the initial planning grant could be withdrawn. While the MDC/university partners challenged each EPD community to devise ways to ensure diversity in participation, not all communities achieved this goal. In Hampshire County, WV, engagement was narrower in scope compared to other EPDs. Early-on, members of the lead organization placed greatest emphasis on networking among local government agencies (Emergency Management, Health and Human Services, and Committee on Aging), rather than grassroots networking of people who best knew their problems and had experienced considerable trauma from recent flood events. As a result, members gathered information and selected vulnerability reduction strategies focused on their definition of disadvantaged populations which centered on the elderly. While the process was too far along to include a more diverse membership, MDC succeeded in

pushing the team to think more inclusively and create a plan that included projects that were aimed at reducing vulnerability of population groups that extended beyond the elderly (to be discussed).

These experiences revealed how EPD communities were challenged to discover and recruit for a diversity of interests. Success was largely defined by a willingness to formulate adaptive recruitment and engagement strategies to better understand the best means for building trust and sustaining engagement in differing local situations.

Table 2 reveals the pattern of results of the determined efforts to enhance participation and strengthen networks. Community-based participants were well represented by diverse participants at five of the six EPD sites (as noted, Hampshire County is the exception). Participation of formal external organizations was mixed as local chapters of humanitarian aid organizations (e.g., United Way and Red Cross) were active in four of the six sites, but state agencies were active in just Dorchester County and Wilmington.

Hertford County had the greatest number of active participants because it had more time relative to other sites to conduct deep penetration in relational and trust building. As noted, Hertford County was the pilot site that was engaged for 18-months while other sites were engaged for a nine to ten month period. This extra time provided the opportunity for the coach and core planning team to “do things side-by-side which is the way you break down race and other barriers to building trust and establishing respect,” as one local participant noted.

Table 2. Most active participants on the Emergency Planning Team (EPT)*.

PARTICIPANTS	Chester Co., PA	Dorchester Co., MD	Hampton City, VA	Hampshire Co., WV	Hertford Co., NC	Wilmington, DE
Internal to Community						
<i>Community-Based Org.</i>						
Econ Dev			X		X	X
Emergency						X
Church	X	X	X		X	X
Health Care			X		X	X
Neighborhood Group	X	X	X		X	X
Child Care					X	
Housing					X	X
<i>Business Reps.</i>						
Small Business Assoc.						
Individual Business					X	
<i>Unaffiliated Residents</i>	X	X			X	
<i>Elected Officials</i>			X		X	
<i>Other Local Institutions</i>						
Educational			X		X	
Health Clinics					X	X

Table 2. Cont.

PARTICIPANTS	Chester Co., PA	Dorchester Co., MD	Hampton City, VA	Hampshire Co., WV	Hertford Co., NC	Wilmington, DE
External to Community						
<i>Local Gov't Agencies</i>						
Emergency Mgmt.	X	X	X	X	X	X
Elderly Services				X	X	X
Health	X			X	X	
Social Services		X	X	X	X	
Coop Extension	X	X	X		X	
Police		X			X	
Neighborhood Dev.	X		X		X	
Housing	X		X			
Planning		X				
<i>State Agencies</i>						
Emergency Mgmt.						X
Social Services						X
Health		X				
<i>NGOs</i>	X	X	X			X

*Attendance lists, meeting notes, and follow up post-plan making interviews were used to identify the groups that were most active and participated in most meetings.

5.2. Co-develop Information

Once MDC/university partners were assured that a diverse set of representative participants were committed to be engaged, except in the one instance discussed above, and the scope of the proposed planning made sense, each EPD community received technical assistance to conduct the next phases of planning that involved diagnosis and discovery for goal setting, strategy selection, and implementation. A central tenant of the diagnosis and discovery was the engagement of local people as active contributors, rather than have hazards experts do the work for (and on) local people. This required innovations and adaptations of methods drawn from conventional hazards research and their application in collaboration with local people. Table 3 shows the range of analytical tools that were adapted and used by each of the EPD planning teams including GIS hazards maps, vulnerability assessments, surveys of households, presentation by experts, and best practices for other communities that were promising models.

The vulnerability mapping exercise that involved identifying the location of hazard areas and socially vulnerable populations in these areas exemplifies one of the adaptations. It is widely assumed that only experts are able to construct such maps (Chapter 3, [3]). However, in all EPD communities local people participated in the formation of place-based maps. A key aspect of the mapping exercise was to bring out stories about how local people were affected personally by disaster events, and to empower them to revise the maps prepared by experts based on local knowledge and experience. In Hampshire County, WV participants challenged the mapped results of the vulnerability assessment. They pointed out areas not highlighted on the maps where flooding occurred. In particular, one area was characterized by steep slopes and ravines, where narrow, steep creeks flooded during storms that

made roads impassable. Some people told of being cut off from work or from necessities (e.g., medicines). Others talked about how people in the more rural areas were isolated and cut off because of flooding or downed trees. They also explained how the vulnerability map inaccurately indicated the presence of a Hispanic neighborhood in a part of the county prone to flooding. Participants remarked that few, if any, Hispanics remained in the neighborhood after an apple orchard shut down, as many came to the area to pick apples. During Hertford County, NC planning team meetings, participants were split into three groups to comment on the maps and point out discrepancies in the location of critical facilities, housing, employment centers, and environmental threats. Comments like “that facility is located across the street from where it is shown,” and “that facility no longer exists” reflect the importance of local knowledge.

Table 3. Techniques used to provide technical assistance.

TECHNIQUES	Chester Co., PA	Dorchester Co., MD	Hampton City, VA	Hampshire Co., WV	Hertford Co., NC	Wilmington, DE
Maps of Hazard Areas	X	X	X	X	X	X
Vulnerability Assessment	X	X	X	X	X	X
Review of Promising Practices	X	X			X	X
Presentation by Experts		X	X	X	X	
Survey Design	X		X			

Thus, the mapping exemplified a fact finding process that produced more accurate and relevant outcomes, but also affirmed local people as knowledgeable actors. Involving the community in the preparation, collection, and analysis of information makes the assessments relevant to them. As community-based participatory researcher Barbara Israel and her colleagues [27] note, people care more about the results and are more likely to act on them when they were deeply involved in the process.

In contrast, Dorchester County’s experience with the maps was not as successful as other EDP sites. Most participants thought the maps were helpful at framing the issues associated with potential hazards in the area, but that some of the data, which was obtained from EPA data databases, was outdated or simply not accurate. Staff from the county’s Office of Emergency Management’s (OEM) recognized the inaccuracies and became vocal critics of the maps. For instance, they pointed out that hazardous facility data was not current. MDC/university staff and the local planning team recognize this limitation and made numerous corrections. Nevertheless, there was a sense among OEM staff that work initiated by outsiders was an attempt to exclude local resources and expertise from the process. In this case, OEM staff felt that they should have been consulted about the maps early-on as they had the more reliable data that was used to revise the maps. According to one planning team member, “...in

the end we worked it out, but earlier involvement by OEM would have saved the project time, resources, and heartburn.”

5.3. Coaching to Build Trust and Motivate Change

A fundamental strategy of the planning EPD planning process was the work of coaches as “relational organizers,” to borrow Warren’s [20] term, in bringing together key participants to build trust and agree on a course of action. Facilitating relationships among stakeholders in community-based organizations (e.g., church groups, neighborhood groups, child care, meals-on-wheels for the elderly), local government service providers (e.g., emergency management, social services, health), and elected officials was an essential function of coaches. The core aim of coaching was to coordinate and leverage ongoing community work focused on housing improvement, economic development, public health, and environmental protection in ways that would produce co-benefits for disaster vulnerability reduction.

Coaches engaged in relational organizing in multiple ways that emphasized face-to-face contact, and minimized disconnected and formal means of contact like bulletins, newsletters, email and phone calls. Coaches continuously worked at targeting those who had divergent perspectives often defined by suspicion and mistrust, and requested them to come together. Some meetings were simple get-togethers to encourage people to get to know each other, share common perspectives, and establish the basis for subsequent interaction. Other meetings focused on difficult issues and required bridging across deep cultural divides defined by race, power and authority. The aim here was to openly discuss long-held conflicts and deep divisions, and begin to mend old wounds. Coaches cultivated new community connections that could help individuals break out of constraining and depressing situations. They helped individuals understand broader community concerns and potential projects that cross old divides and could only be achieved if participants act collectively.

Coaches also provided what Sirianni (p. 380, [17]) terms “translation services” between the grassroots understanding of disaster risks and solutions, and agency cultures that embrace bureaucratic and professional norms that reflects how they perceive risks and the efficiency, equity, and effectiveness of solutions [28,29]. Helping each participant comprehend the viewpoints and beliefs of the other was a core feature of a coach’s work, and enabled individuals and groups she/he engaged with to depend on her/him as a trustworthy broker and conveyor of information.

The “translator service” role of coaches is exemplified in two communities where there was a considerable mistrust between residents and local government emergency management staff at the outset. Residents in Dorchester County, for example, considered staff to be distant, top-down authorities who had little understanding of distressed communities and people of color. Many residents expressed their deep disappointment in prior local government disaster responses that had failed to communicate emergency warnings, and account for evacuation, sheltering, medical and long-term housing assistance needs of underserved people. Local government emergency managers had initial reluctance to contribute their time and expertise, and didn’t see the value in participating. Comments like “the process would be used to criticize emergency managers like everyone else was doing after Hurricane Katrina” reflected their unwillingness to engage. In response, coaches focused on getting residents and emergency management staff to attend planning meetings together, and at times would

arrange for one-on-one discussions. Helping each participant see the viewpoint of the other, including values, interests, assets, and knowledge that each participant could offer, was a central role of each coach, and permitted residents, local government staff, and representatives of the non-government sector to trust the coach as sincere about understanding their positions and trustworthy conduit of information.

In these cases, coaches recognized the need to foster strong ties with public officials like emergency managers that have expertise and resources to help build capabilities of disadvantaged groups. Such support from the top further helped coaches build relations with key street-level staff of local agencies that offer essential services for dealing with a crisis. They could be counted on to work collaboratively with EPD planning teams at the grassroots level, developing commitment and willingness to actively participate in interagency teams that were needed to carry out actions during the implementation phase of EPD work (see below).

However, relational building to get all voices heard did not always go smoothly. As noted, despite considerable prodding, a coach in Hampshire County was unsuccessful in getting individual residents to participate as the lead planning team was dominated by local government agency staff. Consequently, it was geared more to work on formal organizational networking rather than grassroots organizing.

In sum, the relational organizing approach used by coaches at the EPD communities offers a new way of building capacity of disadvantaged people in the disaster management context. The approach also responds to criticisms of early planning theorists who believed that planners could alter the traditional technocratic, bureaucratic planning process and encourage more democratic, pluralistic participation in planning decisions [30]. In these cases, the planners would advocate for and represent the needs of socially vulnerable groups by submitting competing plans. These ideas were later criticized for inadequately engaging socially vulnerable stakeholders in the plan-making process, failing to provide vulnerable groups with authentic decision-making authority, and inability to break down power relations so that vulnerable groups could shape their own destinies [12].

5.4. Select Strategies that Can Be Held Accountable

Each EPD community was tasked to develop a plan that included proposed strategic projects for reducing vulnerability to hazards. Once the plan met standards established by MDC/university staff, each community was eligible for a \$25,000 grant to implement one or more projects. The MDC/university staff reviewed each plan as a blueprint to guide change in each community. In reviewing each plan, MDC/university staff as well as coaches asked several questions: Is the analysis accurate? Do the EPD goals flow logically from the problems identified in the plan? Are projects internally consistent with goals, and are they politically feasible? Is there a clear implementation action program, including a timeline, identification of organizations responsible for implementation, resources that are available needed for implementation, and indicators to gauge progress?

The act of negotiating these questions with EPD teams and pushing them to answer and be accountable with rigor was sometimes contentious. Having worked hard to develop an analysis, create a vision, set goals, select strategies, and establish an action program, EPD teams did not always gain approval of their selected strategies, and sometimes became frustrated when they were challenged

about their assumptions, required to do more analysis, or develop clearer indicators about who participated (and who did not) in the decisions. In negotiations that preceded acceptance of the plan and selected strategies, MDC/university staff took great care to avoid being cast as enabling facilitator in some instances and evaluators in other instances. Rather, the aim was to be supportive of local teams, but to hold them accountable to help them accomplish their own ends [22].

In Hampton, for example, the coach assisted the local planning team in brainstorming options for their information distribution strategy. Next, the team prepared a draft of a grant application, which MDC staff reviewed in person with members of the local planning team. The draft summarized the goals of the strategy, explained how the selected strategy will achieve the goals, and described the planning phase to implement the strategy. MDC requested more specificity about the types of actions used to implement the strategies, and detail regarding the timeline and organizations responsible for spending grant funds. The planning team continued to work with the coach to develop the project, narrowing the list of options for education and distribution tactics. A month later, the team submitted its final proposal which contained detailed actions to raise awareness and preparedness in Hampton. MDC/university staff recommended approval and FEMA accepted the final application for funding.

Table 4 shows the approved set of projects for each EPD community. Different communities chose to focus on different mixes of training, shelter, and public outreach initiatives. For example, Dorchester County had the widest array, while Hampton and Wilmington chose to concentrate on a few.

The intent was to have strategies selected and refined through extensive, iterative discussion and one-on-one communication. Approved plans were designed to achieve goals as envisioned by the broader EPD effort, but under terms local people believed they could control. There was a clear recognition that strategies were rooted in numerous sources of local knowledge, as well as professional expertise.

Table 4. EPD projects selected for implementation.

Chester Co., PA	Dorchester Co., MD	Hampton City, VA	Hampshire Co., WV	Hertford Co., NC	Wilmington, DE
Train-the-trainer course under “Br Red Cross Ready”	Multi-lingual brochures	Neighborhood-based education campaign	PREAP project*	CERT training**	Fun Days for school kit for emergencies
Trained residents supported to train	Family Disaster kits	Post hoc campaign evaluation	Establish volunteer reception centers	Mobilize CBOs to engage in disaster planning	Senior Education Sessions
	4-H Club training in schools	Brochures for household preparedness	Increase knowledge about incident management system	Emergency aid sheltering project	Magnets to raise awareness

Table 4. Cont.

Chester Co., PA	Dorchester Co., MD	Hampton City, VA	Hampshire Co., WV	Hertford Co., NC	Wilmington, DE
	CERT training**		CERT training**	County government adopts resolution	
	Reverse 911 System			Magnets to raise awareness	
	Distribute weather radios to trusted residents				
	Media engagement program				

*Preparedness Education and Assistance Project (PEAP) involves identifying and engaging community organizations that work with disadvantaged and assists them through training, networking and coordinating.

**The Community Emergency Response Team (CERT) program is sponsored by Citizens Corps which helps train people to be better prepared to respond to emergency. The CERT course is taught in the community by a trained team of first responders who have completed a CERT Train-the-Trainer course conducted by their state training office for emergency management, or FEMA's Emergency Management Institute (<http://www.citizenrcorps.gov/programs/cert.shtm>, accessed 8/7/08).

5.5. Build Capacity for Implementation and Sustainable Change

EPD projects were designed to catalyze and build local social capacity to act on behalf of disadvantaged residents. The core goal was to create partnerships so that, over time, professional agency staff and civic associations would be committed and capable in working together to carry the work forward. This participatory and asset-based approach used in the EPD sites is critical to creating active publics needed for implementation of plans and, most importantly, for fostering sustainable change in relations with underserved populations [17,21].

As noted, the MDC/university staff believed that the \$25,000 grants created a strong incentive for keeping teams committed during the difficult planning process, especially for the typically low-resource emergency management departments. Thus, the work that teams did together was not speculative as there was real money on the table. And there was an immediate return on the time and energy invested during the months spent on planning.

While MDC committed funds to enable implementation, this resource would not facilitate lasting change without a well-developed capacity for such change. The funds were viewed by MDC/university partners as incentive grants to seed further civic innovation and progress in the reduction of disaster threats, rather than sustain ongoing programs. Many promising activities emerged during the planning

stage that widen the circle of allies and increase the likelihood for successful implementation (Table 5 illustrates examples of practices).

Table 5. Promising practices that extend the network of allies.

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- In Hampshire County, multiple organizations with no (or limited) experience in disaster planning became actively engaged. The well-established Committee of Aging, for example, became a primary partner in the county's newly established Preparedness Education and Assistance Project which identifies and engages community organizations that work with target elderly groups. An MOU between the Potomac Valley Transportation Authority and Christ Church of Romney was created that certifies the church as a secondary shelter.

 - In Dorchester County, the Office of Emergency Management and a representative of the Hispanic community collaborated on a Spanish language CERT training that has been a success. The office is touted it as the first (if not only one) in the state of Maryland. The Community Emergency Response Team (CERT) program is sponsored by Citizens Corps which helps train people to be better prepared to respond to emergency. The CERT course is taught in the community by a trained team of first responders who have completed a CERT Train-the-Trainer course conducted by their state training office for emergency management, or FEMA's Emergency Management Institute (<http://www.citizencorps.gov/programs/cert.shtm>, accessed 8/7/08).

 - In Hampton, the planning process created an opportunity for the new emergency management director to learn about underserved neighborhoods on a personal level, and to enact an education campaign aimed at their particular learning styles and culture.

 - In Hertford County, the topic of disasters was a vehicle for building new relationships within the community or strengthening existing relationships. Many people who participated already knew each other, and were able to come together as a part of the EPD since they shared a common history and, in some cases, common goals. The process improved the relationships between residents and county emergency management director. They had a better understanding of the emergency manager's job and limitations, and became allies in the search for additional resources (see below for discussion about \$8,500 grant).

Another activity for building capacity to sustain community work involved creating an expanded learning network of EPD participants. Members of the core EPD planning teams were invited to a June 2007 summit in Baltimore to discuss their experiences in working on the EPD projects, exchange ideas about how to improve the EPD process, and learn from each other. Thirty-two people attended the summit in which team members were taught by project coaches and engaged in small group exercises to develop skills on how to learn from each other as well as from networks of community participants that were engaged in each EPD site. Summit attendees then provided training to their own communities about other local experiences. Over 100 people received post-summit training as a result of these efforts. The intent of this process was to generate broader networking capacity to facilitate sustained innovation and commitment beyond the end date of the EPD. Such learning networks enhance cooperative learning and collaboration across the lines that often separate communities, particularly those of race and spatial distance in the case of the EPD communities [20].

A common constraint in building capacity to implement plans was the insufficient amount of time devoted to each EPD community. While there was considerable progress in strengthening internal networks and bridging networks across communities, this limiting factor precluded deeper work in development of trusted partnerships. In Wilmington, for example, people were able to place names with faces and to get a sense that there were many community-based organizations, outside non-profit donor organizations, and public agencies with a stake in reducing vulnerability. However, an extended

period of engagement could have further solidified these emerging relationships. In Chester County, contacts were improved across the three boroughs (Avondale, Downingtown, and Kennett Square), but there was insufficient time to work out how the strategies in their plan could foster inter-jurisdictional coordination.

Finally, an important part of the EPD process was to leverage and pool resources from a variety of sources to help implement the strategies. In Hampshire County, the coach observed, “No one organization has to do all the work with too few resources...the county’s Office of Emergency Management and Department of Health now talk almost daily.” In Hertford, participants in the local EPD project coordinated with the local emergency management director to apply for and receive a grant from the State of North Carolina to establish a Hertford County Citizen Core Council. Not all communities had equal access to external sources. However, when combined with an inclusive collaborative approach and the asset-based disaster planning process of the EPD, this leveraging enabled groups to achieve together what they could not achieve on their own.

6. Conclusions: Mending a Broken Contract

The EPD initiative reported here attempts to address a basic duty of democratic governance that entails upholding a human rights contract to consult marginalized and underserved populations, and involve them in decisions and plans that will affect them. There is a long history of broken contracts by institutions charged to protect disadvantaged communities from natural disasters. Our intent was to redress prior failures through a collaborative process [19,31,32] centered on building the disaster resiliency of disadvantaged communities. We drew on relational organizing model that emphasize face-to-face interaction [18,20] and accountability [15,22]. In this context, resiliency is based on building inter-personal skills in community organizing, strengthening ties to external resources and expertise, and holding local planning efforts accountable to help local people accomplish their own ends and achieve broader community-based goals.

The EPD effort illustrate how a mediating organization like the MDC/university partnership can confront the challenges in building capacity of disadvantaged communities to improve disaster resiliency. First, for a recruitment and engagement strategy to be effective in disadvantaged communities it should be tailored to the strength of local networks and ensure that all relevant stakeholders are engaged early-on. Recruitment requires personal contact in engaging representatives of groups internal to the community with little or no formal power but with knowledge about local conditions and values, and groups external to the community with power and resources to change the status quo [31,33,34]. The recruitment strategy of EPD participants was made easier when pre-existing social networks were strong, and trust and communication links were high, and as the networks could be readily be energized, as in the case in Hampton City, VA. In other cases, when networks were weak like in rural Hertford County, recruitment strategies required more time to build personal contacts to build trust and willingness to engage.

Second, co-development of information by local people and planning experts aided in identifying and prioritizing disaster issues, and selecting strategies. While expert driven knowledge is crucial for scientifically sound planning, “ordinary knowledge” possessed by local people reflects local conditions and values [35,36]. Reliance on ordinary knowledge acknowledges the perspectives and abilities of

local people, and helped develop more accurate information about local vulnerabilities and options for solving them (pp. 1668-1669, [8]). When information was not co-developed as in Dorchester County, there was less opportunity to build a sense of ownership and commitment to the project, and increased hostility. As Israel *et al.* [27] argue, participation is more than just taking part. It involves engagement, choice and the possibilities of that choice being acted on. The intent is to move toward relinquishment of control and devolving ownership of the process to those whom it concerns.

Third, independent coaches built into the planning projects offered critical support to disadvantaged communities in undertaking their own deliberative process. Coaches were catalytic agents, accountable first and foremost to the underserved people but also to standards to achieve the broader aims of the EPD project [22]. They also provided encouragement and guidance when teams were struggling or unclear how to proceed, and served as intermediaries skilled at building trust [19]. They supported informal webs of communication, coordination, mediation, and information exchange to strengthened relationships between underserved populations and formal authorities, and identify and gain access to outside resources needed by the community. When coaching was not followed, collaborative planning was more likely to underperform. Despite considerable urging, for example, a coach working in Hampshire County was unable to convince the core planning team to expand the diversity of participants on the team. Consequently, the team was better geared to work on formal organizational networking that did not spill over to grassroots organizing.

Fourth, when disaster planning is inclusive and accountable, prospects improve in building commitment and capacity essential in implementation and, most importantly, fostering sustainable change in relations with underserved populations. While the EPD projects could offer no assurances that implementation of the selected strategies would be immediate and undeviating, a multi-pronged set of practices was employed to facilitate civic action aimed at sustaining the work. One practice was to foster the creation of collaborative partnerships that included representatives of disadvantaged populations, local agency staff and non-profits, as well as establish ties with learning networks created by activities like the Baltimore summit. The intent was that partnerships would be built through repeated interaction, trust and communication and not fall apart after the EPD work was completed. Another practice involved grants to implement strategies that met accountability standards aimed at partnership formation, civic innovation and sustaining progress in becoming more resilient. Too often success in disaster resiliency work is focused on physical outcomes (e.g., number of brochures distributed or homes elevated in a floodplain), rather than on expanding the number of individuals and organizations engaged in vulnerability, providing technical assistance to complete projects, and offering training for leadership development required to lead future work on resiliency.

In sum, all of the above supports the idea that people have the power to build resiliency of their communities from within [32,37]. Grassroots disaster planning is not premised a carefully scripted, linear and orderly process. There were innovations and struggles from all groups involved. Community-based participatory planning is not fail safe, despite the best efforts of planning practitioners [21]. The disparities between disadvantaged people and the general population in disaster vulnerability and ability to self-govern are deeply entrenched and cannot be undone through a single participatory initiative. To remain vital and capable to meeting needs, a plan and the engagement process must be continuously revisited. It takes time to enhance resiliency of extremely vulnerable populations. Expectations for making quick progress in a single one, two or three year funding cycle

are likely to be disappointed in many cases. EPD's experiences in strengthening capacity highlights a long-term comprehensive approach to this work that focuses on flexible recruitment early-on, recognition of experts and local people as equal partners in co-developing information, role of coaches as relational organizers, and accountability that strengthen networks to sustain progress.

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