

# **A Synopsis of Stakeholder Representatives' Views Regarding Community-Based Health Research Models**

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# **SUMMARY OF STAKEHOLDER INTERVIEWS**

## **Introduction**

Protecting the health of all communities represents a formidable challenge for the Environmental Protection Agency (EPA). According to the 1997 Strategic Plan, the mission of the U.S. Environmental Protection Agency is to protect human health and to safeguard the natural environment—air, water, and land—upon which life depends for all Americans. EPA must carry out this mission consistent with Executive Order 12898 on environmental justice, and existing protective environmental laws.

The Surgeon General of the Department of Health and Human Services issued in January 2000 the publication, “Healthy People 2010—Understanding and Improving Health.” The second goal of Healthy People 2010 is to eliminate health disparities among different segments of the population, including differences that occur by race or ethnicity, education or income. These disparities are especially apparent in minority, low-income, and/or indigenous communities. Many of these same communities bear a disproportionate exposure to environmental pollutants that may underlie and/or contribute to these disparities. When such exposures are combined with other social and physical living conditions present in these environments, the potential for health disparities is magnified even further.

The Office of Environmental Justice requested the National Environmental Justice Advisory Council (NEJAC) to focus its attention on federal efforts to secure disease prevention and health improvement in communities where health disparities exist that may result from, or be exacerbated by, disproportionate effects of environmental pollutants and certain socioeconomic or cultural factors. This report presents the results of interviews with twenty-one (21) stakeholders drawn from government, academia, industry and community organizations.

The stakeholders interviewed here, though from a variety of backgrounds, shared some common beliefs and expectations. Everyone supported the need for developing an integrated model to address community-based health needs. They believed that assessment, intervention and prevention are three major components of a community-based health model. Most emphasized the need for an evaluation component to that model. This is a dynamic model, which requires concerted efforts not just by EPA but by many other federal departments and agencies. Responding appropriately to the multi-agency public health concerns of communities requires a multi-faceted response. Moreover, it was noted that a static definition of health is a barrier to disease prevention and health improvement. Health is not merely an outcome, but a proactive process that lead to an outcome.

A central theme which emerged from the interviews was a need for partnerships. There was strong focus on the issue of working with communities. All stakeholders were emphatic that actions be conducted in the community with having the community as an equal partner. In fact,

there was unanimous agreement that the community, or a community-based organization, is the most critical component of a successful partnership. This theme is a critical element to the success of a community-based public health model. Going beyond the notion of research done “in or to” a community to research that “works with” a community is viewed as a critical link for translating assessment efforts into needed intervention and prevention activities.

There was strong support on the part of all interviewees for the concept of community-based health research models. Given the central role of community-based organizations, community-based research is, thus, an absolutely essential element of any successful federal effort to achieving an integrated community model that includes health assessment, intervention and prevention. Interviewees were able to identify many such successful partnerships. They point to the support of such partnership models by federal agencies, in particular, the National Institute for Environmental Health Sciences. There was general consensus that an evaluation of existing models would provide valuable information, as well as specific tools which can be adapted for specific projects.

There also existed uniformity of opinion that federal agencies must learn to better partner with each other. Currently, there is a prevailing impression among all stakeholders that federal agencies are working in an isolated manner. This was seen as a requisite condition for better partnerships with community and other stakeholders. A number of federal agencies were identified as potential partners in a community-based health research model. These included not only EPA and public health agencies but also agencies such as the Department of Transportation, Department of Energy, Department of Housing and Urban Development, Department of Agriculture, Department of Labor and others.

Special attention should be given to overcoming specific barriers to success of such community-based health research models. One such barrier is the need to capacity building for community-based organizations. Another is recognition of the time-intensive nature of a partnership building process. There are many issues related to communications, cultural sensitivity and trust that must be overcome. Thought should be given to these issues in project design.

While it was agreed that there exists gaps in information to determine a direct causal relationship between environmental pollution and health effects, it was also the consensus that the inability to show a direct causal relationship should not hinder prevention and intervention activities. Barriers to determining direct causal relationships include the absence of human exposure and health surveillance information. Another is the lack of health data to better elucidate socioeconomic and racial factors. Lastly, analysis of health impacts “one chemical at a time” precludes an understanding of cumulative environmental and human health effects.

Socioeconomic and cultural factors are important in addressing community health concerns. It was the general consensus that ample evidence exists of a relationship between socioeconomic and/or cultural factors and health effects. This raised the question of the type of scientific disciplines needed to fully understand the cumulative effects of environmental impacts on



minority, low-income, and/or indigenous populations. Input should be obtained from social scientists as well as physical scientists.

Interestingly, the majority of the comments and views presented in the report parallel the recommendations contained in the 1994 Federal Interagency Symposium on Health Research and Needs to Ensure Environmental Justice and the 1999 Institute of Medicine Report entitled, *Towards Environmental Justice: Research, Education, and Health Policy Needs*. This suggests that most people have similar concerns and recognize similar gaps in current strategies and activities. The majority of the stakeholders look forward to the discussions at the upcoming NEJAC meeting. They also expressed considerable excitement at the possibilities for stronger partnering and collaboration efforts.

## **Purpose of the National Environmental Justice Advisory Council (NEJAC) Meeting**

The charter of the NEJAC directs that entity to provide independent advice to the Environmental Protection Agency's (EPA) Administrator on areas which may include, the direction, criteria, scope, and adequacy of the EPA's scientific research and demonstration projects, relating to environmental justice. To that end, EPA's Office of Environmental Justice (OEJ) has requested the NEJAC hold an issue-oriented, focused public meeting in Atlanta, Georgia. That meeting will be held May 23<sup>rd</sup> through 26<sup>th</sup>, 2000.

The NEJAC meeting will focus on federal efforts to secure disease prevention and health improvement in communities where health disparities exist that may result from, or be exacerbated by, disproportionate effects of environmental pollutants and certain socioeconomic and cultural factors. The meeting will center around three important questions, provided below.

- (1) What strategies and areas of research (research in this context encompasses a broad range of studies that may include basic science, applied research, and data collection. These may be carried out by the following: federal, state, tribal or local governments; universities; communities; industry; and/or individuals) should be pursued to achieve more effective, integrated community-based health assessment, intervention, and prevention efforts?
- (2) How should these strategies be developed, implemented and evaluated so as to insure substantial participation, integration and collaboration among federal agencies, in partnership with the following: impacted communities; public health, medical and environmental professionals; academic institutions; state, tribal and local governments; and the private sector?
- (3) How can consideration of socioeconomic vulnerabilities: a) contribute to a better understanding of health disparities and cumulative and disproportionate environmental effects; and b) be incorporated into community health assessments?

## **Purpose of the Stakeholder Representatives Interview**

In order to have an intensive, focused meeting, the OEJ determined that conducting preliminary interviews of stakeholders would lead to the elucidation of particular issues, which would then serve as the starting point for discussions at the NEJAC meeting. To that end, a number of individuals, representatives from academia; industry/business; federal, state and local governments; community groups; and tribal entities were interviewed. Specific questions were designed by OEJ, with input from the reporter, Dr. Adrienne Hollis. During the summary of the questionnaires, a number of recurring issues and recommendations emerged. Those have been categorized into themes, for use in focusing the NEJAC meeting.

### **Description of Stakeholder Interviewees**

Twenty-one interviews were conducted with stakeholders representing the federal government (6), state health and environmental agencies (3), academic institutions (8), and community organizations (3). In addition, there was one representative from industry/business. These individuals have been involved in some form of community-based activity, including funding research projects, conducting assessment, intervention, evaluation, and/or prevention activities with communities, or by working directly in and with communities. They each bring a wealth of knowledge and expertise to this process. A list of the stakeholders interviewed is provided in Appendix A, and the list of questions utilized during the interview process is provided in Appendix B.

In addition, a draft copy of the initial results of the questionnaire was shared with members of the May 2000 NEJAC Meeting Planning Committee. Their comments and recommendations are also incorporated into this document.

# Themes and Accompanying Comments

## (1) Developing Effective Partnerships

### Who Should Partner in a Community-Based Health Research Model?

There was almost unanimous agreement on the part of stakeholders that the community, or community-based organization was the most critical component for a successful partnership. One community stakeholder, who suggested that academia and community partnerships were the most critical, explained that *"...communities alone will not have the credibility or capacity to address health issues in a way that would lead to policy change, but these partnerships can help communities push a public health agenda...."* They further stated that *"...until the funding process changes, the research needed to do work in communities needs to go through academic institutions...."* A number of stakeholders discussed the definition of 'community'. Some non-community stakeholders pointed out that there should be a mechanism to define community. One stakeholder from a state health/environmental office stated that the community should include *"...people from affected community and folks who are not necessarily affected by an event...pollutants do not know barriers, and may eventually affect other areas..."*. A representative from academia stated that *"...we are also community organizations, we employ from and live in the community...academics are part of the community...."* A stakeholder from the federal government stated that *"...leadership in communities must be defined by communities...we should not try to define community leadership, let them (the community) identify leaders...."* Other entities that were identified by the majority of the stakeholder representatives as a necessary component included; academic research institutions, federal, state, and local government, health care providers, local environmental and health departments, and funding agencies.

A few representatives (one each from academia and a state health/environmental office, and two from government) felt that industry/business should be included in the partnership, in order to achieve success. Interestingly, one stakeholder from academia was very vocal **against** bringing industry to the partnership. This particular stakeholder stated *"...industry has always done something with an ill intent. They are not to be trusted, and most people are not convinced that they [industry] have the interest of the people at heart...."* In contrast, a stakeholder from the state health/environmental agency stated that *"...industry plays a key role as a stakeholder in this process...industry is not explicitly included in the process...they should not be considered a barrier, but they should be included in the partnership...."*

### Critical Elements for Success

When asked what elements were needed for a successful partnership, it was the general opinion of the stakeholders that trust and credibility **MUST** be established among the partners. As one stakeholder explained *"...trust from the community and from the stakeholders is one of the critical elements for success...."* A second stakeholder from academia stated that *"...partnerships will work if accountability and structure are incorporated into the process...."* The overwhelming majority of the stakeholders agreed that establishing trust and credibility is time



and resource intensive, and that this should be recognized and acknowledged by all stakeholders. According to one federal stakeholder, *"...trust is a critical element in any partnership...if you outline what you are going to do, do what you say will do and say what you cannot do, that will go a long way toward establishing trust and credibility...."*

A stakeholder from academia stated that the foundation for this model would be developed with education, training or outreach to the community, to ensure that everyone is *"...on the same page...."* A second stakeholder from academia stated that *"...It is incumbent upon funding agencies to verify partnerships, to insure that it is not some inequitable, patched together, kind of network. This effort requires the evaluation of whether a partnership described on paper, on a grant application, actually exists and will survive post-funding...."*

## **(2) Intervention and Prevention Activities**

### *When Should Intervention and Prevention Activities Occur?*

Intervention and prevention, two of the components of a community-based health model, generated a great deal of discussion. One federal stakeholder suggested that after assessment is complete, the partners should analyze whether intervention is needed. The partners should first discuss what is meant by intervention, then decide what is needed.

A stakeholder from the community and a representative from the NEJAC May 2000 Planning Committee, both discussed the importance of the "Precautionary Principle", which involves taking appropriate measures to protect public health. Although other stakeholders did not use the term "precautionary principle" in their discussions, most, if not all, felt that in the presence of or threat of adverse health effects, there was no need to wait before initiating intervention/prevention activities. These activities should be a major element of the way business is conducted when dealing with environmental issues. One community stakeholder stated that both intervention and prevention activities must be conducted with the community, not on the community in order to be successful. They further stated that the community believes that any research conducted must include an intervention component. In addition, when dealing with federal agencies in these activities, there should be some protocol or guideline on interaction with the community. For example, when ATSDR conducts public health assessments and health consultations, and when EPA conducts risk assessments, there should be a methodology in place for working with communities.

According to a number of stakeholders, prevention is often placed last, both in design and in thinking, when addressing environmental issues. As one federal stakeholder stated, *"...Individuals who are adept at prevention activities have been trained to look upon it as a 'final step' in the process...."* That stakeholder provide the example of EPA's role in public health, which is for the most part, according to the stakeholder, not health related. Their strongest work is in the area of prevention, looking at enforcement of environmental guidelines and laws. Along those same lines, the National Institute for Environmental Health Sciences (NIEHS) has been

attempting to address the prevention portion of the model (along with assessment), and has recently begun looking at prevention efforts.

A number of stakeholders felt that intervention was an area needs more attention. An example provided by a state stakeholder, is the issue of asthma. There is a lack of activity in addressing the incidence of asthma, particularly in children. A second example involves lead exposure and toxicity. A number of stakeholders suggest that appropriate intervention and prevention efforts have not been applied to this issue. In addition, it was suggested that intervention and prevention may not be that different. After a partnership has assessed a problem, they should analyze whether intervention is needed, and then decide on an appropriate intervention.

#### Barriers to Effective Intervention and Prevention

According to input from a number of members of the NEJAC May 2000 Planning Committee, a major barrier to effective intervention and prevention activities stems from the perception that city, state, county, tribal agencies, and/or municipalities are supportive of the activities of the polluting industry or business. This is true even when dealing with federal facilities. Their interest may be directed more towards economic interests than the health of the community. According to the Committee members, pollution prevention and enforcement activities should be a major emphasis of these entities when dealing with industry/business.

One stakeholder from a state environmental health office stated that a major barrier is the lack of action on the part of the EPA. He discussed the issue of lead contamination in communities as a major example. He felt that this was an established issue that has had virtually no intervention. He further stated that in order for intervention and prevention activities to work, the federal government could not go directly to communities, the state and local health and environmental regulator entities must be involved.

### **(3) Community-Based Research**

#### What is Community-Based Research?

Initial discussion surrounded the definition of community-based research. The consensus is that the model has to be **participatory**, with the community as an equal partner, in order to be community-based. It was suggested by a member of the NEJAC May 2000 Planning Committee that the name be changed to “community-based participatory research,” to differentiate it from research done “in or to” a community. According to a number of stakeholders, in this model (participatory research), the community has a leadership role in activities planned by the partnership. This is an issue that both NIEHS, through its environmental justice partnership grants, and ATSDR, through the Minority Health Association Foundation grants, have been attempting to address.

Most stakeholders (with the majority from academia and the federal government) stated that research in the community-based health research model should be more broadly designed. The definition of this research should be qualitative, rather than quantitative. Assessment of this

model has to be rigorous and detailed, and must include what may be non-conventional methodology, including the use of biomarkers. When discussing risk assessment, EPA must be open to incorporating unconventional data into that model. The design of the model should be done by the partnership with all stakeholder.

A representative from the NEJAC May 2000 Planning Committee stated that it was important to note that there are other types of research, besides participatory, which should not be overlooked, because of the value of the data obtained. No additional details, however, were provided.

In addition, a community representative on the NEJAC May 2000 Planning Committee suggested that there should be some protocol or guideline developed which would allow the community to participate in “agency” research, with the term ‘agency’ inclusive of academic institutions and other entities conducting research. A stakeholder from academia suggested that efforts be made to promote opportunities to increase technical proficiency or empower local communities to conduct small scale studies, using valid methodologies, such as accepted analytical methods for environmental sampling. Funds should be provided which would allow communities to work with researchers who can train and bring communities ‘up to speed’ on sampling and research methods. Competition for funding between community organizations, academic institutions, and other organizations to work with a specific community, should be eliminated.

#### Quality and Quantity of Data Produced

The general consensus of the majority of the stakeholders was that data obtained through community-based efforts are useful. The concern is that because of the size of the population, there may not be statistical significance, which is a concern when using data to generate policy. One stakeholder from academia stated that there is tension between the desire for rigorous study design and the reality of actually conducting that research in the community. According to another stakeholder, a great deal of data are produced, but there is concern about the internal validity of the design.

One stakeholder suggested that efforts should be made to increase technical proficiency or empower local communities to do small scale studies, using valid methodologies and accepted analytical methods for environmental sampling. This should improve the quality of any data produced.

#### Data Gaps in Community-Based Efforts

One stakeholder from academia stated that data should be gathered on different levels. For example, data is needed on issues surrounding residential and occupational segregation, racial and economic segregation, gender, schedules of exposure, and links between exposure to hazardous substances in hospitals, to name a few.

In addition to the stakeholders mentioned previously, scientists from the social sciences (sociology, psychology, behavioral sciences, anthropology, psychometrics, etc.) should be included in research activities. The community model would benefit from social science. They have a great deal to offer in the area of social behavior, psychological stress etc.

When dealing with the issue of research, there needs to be some guidelines on how rigorous the research and science needs to be in order to be relevant to policy development. While it is agreed that there should not be tradeoffs between scientific rigor and policy relevance, there needs to be consideration for the value of this type of research. While the data may not meet the certain standards required for scientific rigor, the data can be important in its own right. The question becomes: 'How much research is needed before actions are taken, particularly around issues of health disparities?'

#### *Assessment, Intervention, and Prevention in the Community-Based Research Model*

Although all stakeholders agreed with the inclusion of these components in a community-based model, a few stakeholders have suggested that communities have had enough "assessment." Those stakeholders, representatives of community, academia and state health/environmental entities, stated that we are very good at assessment, but need to focus on intervention and prevention activities. In contrast, one federal stakeholder stated that assessment was the element most in need of improvement. It was almost unanimous that communities play a major role in assessment, intervention and prevention. In addition, one federal stakeholder stated that "*...the assessment describes what is or what exists, and what has been done concerning particular issues. ...*" One stakeholder from academia stated that assessment is core, in terms of what kind of data is required. Assessment is also important because community and scientists' perceptions needed to be discussed.

#### *Evaluation in Community-Based Research*

A fourth component, in addition to assessment, intervention and prevention, has been suggested by a number of stakeholders, including representatives from the federal government, academia, state health/environmental agencies, and community groups. According to these stakeholders, evaluation should be a major part of any health model. One stakeholder from academia also pointed out that evaluation is also a barrier to implementation of the model, as very few stakeholders are trained to conduct evaluation. Rigorous evaluation is needed throughout the research project, to prevent delayed intervention in some communities. One stakeholder stated that, in the past, evaluation had been conducted via a traditional approach, which does not recognize social assets (i.e., how we build models or pilot projects that leave the community more empowered). This would require quantitative evaluation. The type of evaluation needed is foreign to researchers, because it *is* qualitative and formative in nature. One stakeholder stated that all partners must feel comfortable with the tools of evaluation, and that training in evaluation should be required for everyone, including the funding agency. A number of stakeholders discussed the need for input from individuals in the social and behavioral sciences, as they would have expertise in evaluation.

One federal stakeholder opined that evaluation is different from assessment. Evaluation is inherent with value, assessment describes what is or what exists concerning particular issues, as well as what has been done. It was also suggested that in addition to the evaluation conducted by the partners, outside evaluation would provide invaluable insight and feedback on the activities conducted.

A community stakeholder stated “...when people think about evaluation, it is intimidating. We should embrace it. It is usually one way, from the funding agency...it needs to come back the other way - what is the agency internally doing to evaluate how it does its work...”

#### **(4) Current Models of Community-Based Research**

##### General Comments

The prevalent opinion among stakeholders interviewed, including those from the scientific community, is that there are successful models of community-based research. Several interviewees took note of the following community-based research models. It is beyond the scope of an interview process to describe each in sufficient detail and accuracy. Most suggested that someone should compile the results of those activities, detailing the types of community interactions and the models used. A description of some of these projects can be found in Appendix C.

The majority of these examples incorporate environmental justice principles into the partnership activities, but this is not true for all examples. A general suggestion, made by a stakeholder representative from federal government was to examine the results of grants funded in the past. These grant programs include Environmental Justice Community University Partnerships for Communications (NIEHS), Community-Based Intervention/Prevention Strategies (NIEHS), Environmental Justice Pollution Prevention Grants (EPA), Environmental Justice Community-University Partnerships (EPA), and the Environmental Justice Small Grants (EPA).

It should also be noted that there was general consensus that an evaluation of models currently in use would provide valuable information, as well as provide a number of tools which can be adapted for specific projects.

##### Critical Elements for Success of the Model

Critical elements for success, as identified by the majority of the stakeholders, include respect, equity and empowerment. According to one stakeholder, “...respect deals with the fact that culture and community concerns deserve equal merit from the partners. Equity involves sharing the wealth with the community, and empowerment involves being committed to the principle of making the community self sufficient....”

A number of stakeholders also identified ‘having an open mind’, and ‘stepping outside of the box’ is also critical to the success of the project. According to the stakeholders, this involves a willingness to conduct activities differently, to see value in collaboration with other partners. An

additional element identified as important to the success of the model, is capacity within each component to work together.

One government stakeholder stated that current risk assessment methodologies are not designed to address non-chemical stressors. They (risk assessments) are not epidemiological studies. Consideration should be taken in addressing this issue.

#### **Barriers to the Success of the Model**

Special attention should be given to specific identifiable barriers to the success of the model. One such barrier, identified by state health/environment, community, and academic stakeholders, is the lack of capacity-building for community based organizations, to enable them to partner with scientists and health care providers. A second barrier is the time intensive activities needed in the initial stages of the partnership development. The consensus among the stakeholders that the time-intensive nature of the partnership could be a barrier, from a funding perspective as well as a commitment (by stakeholders) perspective. An additional barrier is the complexity of the model design. The more complex the model, the more difficult it is to plan, implement and evaluate. This is true for any model. Other barriers identified by numerous stakeholders included resources, such as computer equipment, and economic issues (including simple issues such as travel of community members to partnership meetings).

One stakeholder from academia discussed institutional barriers, related to tribal council changes and cultural sensitivities as a major impediment to the success of the model.

A community member stated that the barriers around relationship are not as important when community capacity is built-in. The focus becomes more on prevention and dealing with the current exposure than trying to figure out what happened in the past.

### **(5) Barriers and Data Gaps and their Relationship to Health Effects**

While it is agreed that there are a number of barriers and data gaps in current research activities directed toward addressing health effects, it is also the consensus of the majority of the stakeholders that the inability to show a causal relationship between exposure and effect should not hinder prevention and intervention activities. One of the barriers identified time and again, is the continual effort to determine past exposure and health effect. It has been suggested that efforts should focus on dealing with current exposure instead.

One federal stakeholder stated that the work started in the 1985 Secretary's Task Force on Black and Minority Health Report, which identified both the current state of the health of people of color and the data gaps, is the place to start. That stakeholder also stated that the Institute of Medicine Report on Environmental Justice would prove invaluable. Other resources mentioned include the National Medical Association, the Hispanic Health Association, and organizations for Asian and Native Americans.



When asked what the three greatest barriers to determining the relationship between exposure and health effects, one federal stakeholder stated that little is known about the latency period between exposure and health effect. There is also the perception that health and environment are not related. The environment has not been associated with adverse health effects in the past. A number of stakeholders from academia stated that the type of exposure is important, and that it is difficult to determine, given the latency period, what the exposure was.

Another barrier identified is the issue of an absence of sufficient human exposure and health surveillance information, beyond that provided through the Toxic Release Inventory (TRI) or emissions data. In addition, although health data is collected by race and ethnicity, there are no indicators of social class on the birth certificate, no information on income, health insurance, etc. This makes it difficult to determine the impact of race versus socioeconomic status when examining health effects. One federal stakeholder identified the definition of 'health' as a barrier. He stated that health is not an outcome, it is a process which leads to an outcome. That outcome must be defined by an individual group.

One community stakeholder stated that one barrier is the procedure used which only analyzes one chemical at a time, instead of studying synergistic effects. In addition, they stated that little information is available on new chemicals, and transient exposures (the effects of exposure at different times in our life...past and current exposure). An additional barrier mentioned is poor health record keeping, where people receive services from different clinics, with no uniform way to keep track. In addition, the lack of a universal health plan was identified by the community stakeholder as a barrier.

## **(6) Socioeconomic Vulnerabilities and Cultural Factors**

The overwhelming consensus is that all socioeconomic and cultural factors are important in addressing community health concerns. According to one stakeholder, risk factors are socioeconomic and behavioral, so interventions must be the same. These factors include social, behavioral, economic, cultural, and political issues. It is the general consensus of stakeholders that ample evidence exists of a relationship between socioeconomic and /or cultural factors and health impacts. A federal stakeholder stated that *"...you cannot assume that issues around race and ethnicity are the same as those surrounding socioeconomic concerns...holding demographics constant, race and ethnicity continue to be significant, holding race constant, demographics and ethnicity are significant and so on...."*

According to one academician, socioeconomic conditions and health, absolute and relative poverty, standard of living, access to healthy foods, position at work (occupational environment), are all factors relevant to health. They continued by stating that *"...culture includes behavioral differences, cultural disparities, such as language barriers, culture mixed with racism, etc.,...."*

Interviewees recognized socioeconomic vulnerabilities and cultural factors as being important contributors to health disparities. Consideration and attention need to be directed at the role of other factors, such as psychological stressors (i.e., job security, safety issues, housing, etc.), class, outside stressors, environmental stressors, economic and racial segregation and others, may play in relation to health disparities.

One stakeholder from academia stated *"...if you are talking about environmental justice, you must discuss issues of class in relation to race, gender, and other factors. This should include informed social scientist' input, not just physical science..."*

## **(7) Effective Risk Communication**

It was the general opinion of most stakeholders that in order for a partnership to be successful and for community-based research to be effective, all stakeholders should be able to communicate with each other. One federal stakeholder stated that *"...we have to find a way to talk to communities about what we can and cannot do in a better way. This should be different from the risk assessor coming in and calculating risk, or saying that they cannot calculate it...scientists and policy makers have to be more helpful to communities, or they will lose credibility...."* According to one federal stakeholder, *"...the key is communication, we do not talk each other's language (i.e., toxicology, chemistry, etc., tend to resolve problems, but need to learn to listen better...they fail the community as scientists...."* A number of stakeholders stated that communication was especially important when a representative from the medical profession is speaking with lay people about health issues or an academician is speaking about research in scientific terms, or when a risk assessor or health assessor is speaking in technical terms.

Quite a number of stakeholder representatives stated that, in order to avoid confusion and misunderstandings later in the partnership, expectations and limitations of *EACH* entity should be identified in the initial stages of development. As one stakeholder stated *"...communication, good up-front understanding of the capabilities and limitations are essential..."* In addition, the community's (or any other stakeholders') perception of risk should be taken into account when determining or communicating risk.

A stakeholder from academia suggested that all partners receive some training in effective risk communication before activities are initiated. In addition, cultural competency is important when attempting a risk communication effort. An example of this was presented by a federal stakeholder. In efforts to address pollution at the United States and Mexican border, a number of documents were developed, for different educational levels. This major risk communication effort was very successful. According to that same stakeholder, the goal of risk communication is understanding, not consensus. A second stakeholder from academia stated that we need to be conscious of how risk is communicated. The meetings where information is provided should be continuous consensus building sessions. There needs to be growth and updating of activities occurring since the last meeting. The connection and partnership should be one in which the lines of communication should have already been open, there should be no surprises.

All stakeholders must agree, as a part of their initial standards of conduct, to accept the information provided, even though it may not be the particular results/conclusions they were expecting. If trust and credibility have been established, this will occur as a normal part of the partnership interactions.

## **(8) Sustainability**

### *Sustainability of the Community-based Health Model*

This particular topic, sustainability, is related to a number of issues. Most stakeholders identified the need for the community-based health model must be sustainable. It must contain certain strategies for building capacity, so that activities continue, even after the funding period ends. To that end, resources are an integral part of sustainability. Both sustainability of the partnership (the model) and of the planned intervention were identified as resource intensive activities.

### *Sustainability of the Activities*

As mentioned earlier, the initial activities, where trust and credibility are established, are time intensive. Most stakeholders, the majority from academia, believe that funding entities must take into consideration the fact that this effort will be time and resource intensive, particularly when placing time limits on grants. For example, a one year funding period is not feasible for establishing a partnership and initiating activities. Funds should be set aside to create partnerships for projects that are beneficial to everyone, that do not cost billions of dollars, and that will allow stakeholders (academia, community, etc.) to work together, instead of competing for limited funds.

As one NEJAC May 2000 Planning Committee member stated, there should be some way to determine, other than the ending of the funding period, when it is time to end a project. In some cases, if the research goes further than the allotted time, it will impact agencies and entities that were thought to be out of reach. This type of success would only be due to the sustained efforts of the partners involved.

## **(9) Federal Agencies as Partners**

### *Role of Federal Agencies in Partnerships*

Most stakeholders stated that before federal agencies can partner with communities and other organizations, they must first learn to work together. Currently, the prevailing thought among stakeholders is that federal agencies are each "doing their own thing", addressing their agenda, although there are some agencies that are attempting to establish a more coordinated working relationship with others. For example, the National Institutes of Health is trying to create a cross-initiative around health disparities.

A number of federal agencies were identified as potential partners in a community based model. Most stakeholders agree that the appropriate federal agencies would simply depend on the issue(s) which need to be addressed through the model. Some agencies identified include EPA ,

ATSDR, CDC, DHHS, DOE, USDA, FDA, OSHA, DOT, HUD. Other agencies should be willing and waiting to participate, as the need arises and they are identified by the partnership.

Also, as partners in this process, federal agencies should realize the time it takes to form partnerships, and be willing to provide funds to conduct appropriate activities.

### *The Role of Federal Agencies in Addressing Health Disparities*

According to one academician, the current problem federal agencies face when addressing health disparities stems from the idea that their role is stove-piped. For example, one agency may be studying asthma, another may be concentrating on genetics, while a third may be focused on surveillance. He further stated that these agencies have tunnel vision, and should attempt to develop an integrated plan to attack health disparities. They should also move toward a more integrated effort for exposure data gathering. A second stakeholder from academia stated that they have been encouraged by the explosion of interest of federal agencies in addressing health disparities. The level of interest and willingness to fund projects by NIEHS, the National Institute on Aging, the National Cancer Institute, CDC and others has been good.

One federal stakeholder opined that a second role of federal agencies is assurance and policy development, as outlined in the IOM report. The policy development is at the federal, state, and local level. A second stakeholder stated that state and federal government are involved in monitoring health, and that a good contact person for information on this effort would be Dr. Diane Rowley from the CDC.

## **OTHER STAKEHOLDER COMMENTS**

Some important stakeholder comments were not included in the main part of the document, as they did not lend themselves to any particular theme. They are nonetheless, important. Those comments are provided here.

*One comment from a federal stakeholder was “...we know what to do, we don’t have the courage to do it. It is not an issue of health, but an issue of liability. Whose responsibility is it? That is a whole set of issues that do not get resolved. This is an overwhelming issue. There are so many unanswered questions...when in doubt, we should err on the side of public health. We don’t have to wait for illness or risk factors before doing something. That is almost unethical. Why wait for the dead bodies....”*

*A representative from academia stated that “...it is wonderful that attention is being paid to the importance of developing community based models. This activity needs real resources, lip service and not following through will cause more problems and distress...”*

A comment that was made by a stakeholder from the community and academia, is that a mechanism be provided to educate youth so that they may continue the work started by these individuals.

**APPENDIX A**  
**ENVIRONMENTAL JUSTICE STAKEHOLDER INTERVIEWEE LIST**

## **STAKEHOLDER INTERVIEWEE LIST**

- |                             |  |
|-----------------------------|--|
| 1. Mr. Michael Callahan     | EPA Office of Research and Development   |
| 2. Dr. David Carpenter      | School of Public Health, University of Albany, SUNY                                      |
| 3. Mr. Cecil Corbin Mark    | WHEACT   |
| 4. Ms. Carolyn Covey-Morris | SOCMA, VP Government Relations and Public Affairs<br>(Industry/Business)                 |
| 5. Dr. Allen Dearry         | National Institute of Environmental Health Sciences                                      |
| 6. Ms. Paula Goode          | EPA Office of Children's Health  |
| 7. Dr. Richard Gragg        | Environmental Sciences Institute, Florida A&M University                                 |
| 8. Dr. Walter Handy         | Cincinnati Health Department   |
| 9. Dr. Cynthia Harris       | Institute of Public Health, Florida A&M University                                       |
| 10. Dr. Bruce Kennedy       | Health and Social Behavior, Harvard University School                                    |
| 11. Dr. Patrick Kinney      | Columbia University School of Public Health  |
| 12. Dr. Nancy Krieger       | Harvard School of Public Health  |
| 13. Dr. Paula Lantz         | University of Michigan   |
| 14. Ms. Yin Ling Leung      | Asian Reproduction Rights  |
| 15. Dr. Andrew McBride      | North Carolina Department of Health  |
| 16. Dr. Karen Medville      | Arizona State University, West. American Indian<br>Environmental Health Sciences Program |
| 17. Dr. Ngozi Oleru         | Environmental Health Department,<br>Seattle Health Department                            |
| 18. Dr. Bill Sanders        | EPA OPPT/OPPTS   |
| 19. Ms. Samara Swanston     | The Watch Person Project   |



- |                       |  |
|-----------------------|--|
| 20. Dr. Reuben Warren | The Agency for Toxic Substances and Disease Registry |
| 21. Dr. Hal Zenick    | EPA's Office of Research and Development             |

#### **OTHER PLANNED INTERVIEWEES**

- |                                     |  |
|-------------------------------------|--|
| 22. Ms. Katsi Cook                  | Akwasasne Nation (could not be interviewed due to scheduling conflicts)  |
| 23. Mr. Michael Sage                | National Center for Environmental Health,<br>Centers for Disease Control and Prevention (could not be interviewed due to scheduling conflicts) |
| 24. Another Industry Representative | – Several unsuccessful attempts were made to find an additional industry representative.   |

## **APPENDIX B**

### **CONVENER'S QUESTIONS FOR STAKEHOLDER REPRESENTATIVES**

## CONVENER'S QUESTIONS

**The EPA seeks advice and recommendations from the National Environmental Justice Advisory Council (NEJAC) on Federal efforts to improve the health status of communities. In particular, EPA asks the NEJAC to focus on communities where health disparities exist and in which those disparities are associated with: environmental stressors; and certain socioeconomic and/or cultural factors.**

### (1) Community-Based Public Health Model

The Agency is considering how programs/projects/activities that will address community-based health concerns can be designed and implemented with the direct involvement of all stakeholders (community, industry, local government/tribal entities, academic institutions, and State and Federal agencies). It has been suggested that this integrated, community-based model should include three components: assessment, intervention, and prevention. In the questions below, the phrase "community-based health model," includes these three components and substantial stakeholder involvement.

- (1) Do you think that this model is a viable one for addressing community health concerns?
- (b) Are there barriers to implementation of this community-based health model, in general, and with your agency or organization or community, including tribal groups, in particular?

### (2) Design, Implementation and Evaluation of the Community-Based Health Model

- (1) How should each of the components (e.g., assessment, intervention, and prevention) of this community-based health model be designed, implemented, and evaluated?
- (2) Who should design, implement, and evaluate each or all of these components?
- (3) What research would be most useful in the area of community-based health design, implementation, and evaluation (e.g., methodology, data, etc.)?

### (3) Examples of Community-Based Health Efforts in Action/Practice

- (1) Can you give an example of a community-based health model in action/practice and how it was conducted?
- (2) What methodology did it follow?
- (3) Was this program successful, and, if so, why?

- (4) What was the result(s) of these efforts?
- (i) Did significant actions result (e.g., abatement, new policies, or research) or changes in stakeholder relationships?
  - (ii) Which stakeholders were involved in affecting these actions?
  - (iii) What did each stakeholder bring to the process?
  - (iv) Would increased involvement by any particular stakeholder group have made the effort more successful?

(4) Critical Elements for Success

- (1) What specific elements (e.g., policies, activities, and methodologies/approaches) of each component are required for the success of this community-based health model?
- (2) For each component, which elements are most in need of improvement?
- (3) What specific research would help bring about these improvements?

(5) Environmental Justice

- (1) Were environmental justice concerns incorporated into the actions described above?
- (2) How in particular were these concerns integrated and/or addressed?

(6) Partnerships

- (1) Which partnerships are most critical to the success of a community-based health model, and why?
- (2) Are you aware of examples of successful partnerships among stakeholders, including appropriate Federal agencies? Why were these partnerships successful?
- (3) Which Federal Agencies should partner in community-based health efforts, and in which specific component(s)?
- (4) What can be done to promote the formation and use of partnerships among stakeholders, in general?
- (5) What research would be most useful in this area?

**(7) Federal Agency's Role**

- (1) What is the current role of Federal agencies in addressing health disparities in communities?**
- (2) What should be the role of Federal agencies in addressing health disparities in communities?**

**(8) Quality and Quantity of Data Produced Through Community-Based Efforts**

- (1) Are data produced through community-based health assessments/research useable when drawing conclusions, testing hypotheses, and/or making policy recommendations?**
- (2) What types of data gaps are most frequently associated with community-based efforts?**
- (3) What research would be most useful to address data gaps?**

**(9) Consideration of Socioeconomic and/or Cultural Factors in Addressing Community Health Concerns through Assessment, Intervention, and Prevention**

- (1) Are specific socioeconomic and/or cultural factors relevant to addressing community health concerns? Which ones?**
- (2) Is there a scientific basis or relationship between socioeconomic and/or cultural factors and health impacts? If so, which ones?**
- (3) What research would be most useful in addressing these issues?**

**(10) Relationship Between Exposure and Health Effect**

- (1) What are the three greatest barriers to determining the relationship between exposure and health effects?**
- (2) What role have community-based efforts played in resolving issues of exposure and health effect? Can you provide examples?**
- (3) What areas of research or data collection would be most useful in these areas?**

**(11) What other suggestions would you like to make?**

## **APPENDIX C**

### **Models of Community-Based Research**

#### **THE AKWESASNE FIRST ENVIRONMENT RESTORATION INITIATIVE (Principal Investigator: Mary Arquette)**

##### **OBJECTIVES:**

- Develop partnerships among community members, health care providers, and research scientists.
- Design community-based strategies for environmental health education, outreach, and training in the Akwesasne Mohawk community, which is adjacent to a Superfund site with a history of major environmental contamination.

##### **METHODS:**

- An initial needs assessment examining health risks, perception of risks, and communication of risks will be conducted using focus groups.
- Develop educational materials with Mohawk language content and symbolism.
- Produce an air of “Good Health” show on Akwesasne Mohawk Radio.
- Conduct environmental health fairs at local schools.
- Implement training workshops for clinicians and traditional practitioners with a focus on toxic exposures.
- Establish focus groups and workshops to ensure community input into health research needs.

##### **LOCATION:**

The Mohawk Nation at Akwesasne (St. Regis Mohawk Tribe), located in the Great Lakes Basin-St. Lawrence River watershed, is exposed to hazards resulting from the rapid transition from an agricultural to an industrial environment. PCBs have been found in fish, which provide a protein staple in the Mohawk diet and in human breast milk.

#### **DINE COLLEGE - URANIUM EDUCATION IN THE NAVAJO NATION ( Principal Investigator: Mark C. Bauer)**

##### **OBJECTIVES:**

- Establish collaboration among the Navajo community, Navajo Community College, local primary care physicians, the Central Consolidated School District, the University of New Mexico Center for Health Promotion for Rural American Indians, and scientists with expertise in radiation health issues.



- Conduct qualitative and quantitative research with the Navajo community concerning knowledge and behavior about radiation.
- Produce culturally appropriate educational materials about cancer, birth defects, and radiation.
- Conduct community programs and training sessions leading to greater awareness regarding radiation dangers.

#### **METHODS:**

- Establish a radiation education center for the Navajos in geographic areas affected by uranium mining.
- Assess community-identified concerns, priorities, values, goals, and strategies for education on radiation issues.
- Develop culturally appropriate education and communication materials based on the preliminary community assessment.
- Provide in-depth training of community leaders and health care providers.
- Develop and implement education, training, and organizing strategies for grassroots community members.
- Perform community-based evaluation of project's effectiveness to determine its progress in attaining community-defining goals.

#### **LOCATIONS:**

- The Navajo Nation in NM, AZ, and UT contains >225,000 people, only half of whom have graduated from high school. Uranium mines operated from 1940 - 1980. Radioactive uranium tailings were freely dumped. Lung cancer, silicosis, renal toxicity, and other disorders occur at a high rate.

#### **ASIAN AND PACIFIC ISLANDERS FOR PRODUCTIVE HEALTH ( Principal Investigator: Yin L. Leung)**

#### **OBJECTIVES:**

- Create a core group of Southeast Asian girl leaders that are knowledgeable and skilled in educating other community people about environmental hazards and reproductive health.
- Improve reproductive health services through joint work with family planning clinics that serve these communities.
- Build capacity between two project sites so communities will recognize their common environmental justice and reproductive problems.
- Seeks to redress the environmental impact Southeast Asians experienced because of the Vietnam War, to eliminate current exposures issues today and to improve communities reproductive and overall health and well-being.

#### **METHODS:**

- Recruit and train a core of Southeast Asians girls on basic issues of environmental justice and reproductive health to become community trainers.

- Use participatory action research, a systematic investigation with the collaboration of those affected by the issue being studied, for purposes of education and taking action or affecting social change, to improve the health and environment of these communities.

#### **LOCATIONS:**

- Long Beach, California
- Richmond and Oakland, California

Following the Vietnam War, refugees from Southeast Asia settled in the United States. Exposed to numerous chemicals during the war, they arrived with little money and no job or language skills, settling in poor and environmentally hazardous areas. Due to lack of education and job skills they work primarily in menial jobs putting them at additional risk of exposure both at work and at home.

#### **URBAN APPALACHIAN COUNCIL LOWER PRICE HILL ENVIRONMENTAL LEADERSHIP COALITION (Principal Investigator: Pauletta Hansel)**

#### **OBJECTIVES:**

- Promote neighborhood leadership that has the information, skills, and resources for successful approaches to environmental pollution, risk communication, and public health service.
- Identify and implement changes to procedures used to address the unique environmental quality and health status problems of historically underserved communities affected by environmental pollution.
- Develop a long-term working relationship among residents and community organizations in Lower Price Hill, the University of Cincinnati, and the Cincinnati Health Department.

#### **METHODS:**

- Design and conduct a survey of the community regarding health concerns and environmental pollution.
- Develop education and training modules to maintain effective communication between the Lower Price Hill Environmental Leadership Coalition and the community.
- Develop evaluation materials to be used to determine effectiveness of the project.

#### **LOCATIONS:**

- Lower Price Hill, located in Cincinnati, Ohio, is an urban Appalachian community. Residents are predominantly low-income Caucasians; 71% have not completed high school, compared to 28% for the city, as a whole; unemployment is >20%; 90% of concentrations of lead have been found in playgrounds. Children exhibit learning disabilities at twice the rate of children from other neighborhoods and are five times more likely to suffer from acute respiratory infections.

## **THE SOUTHERN CALIFORNIA ENVIRONMENTAL HEALTH PROJECT (Principal Investigator: Carlos Porras)**

### **OBJECTIVES:**

- Institute a collaboration among community representatives, local health care providers, and university researchers.
- Educate community members and health care providers and promote adoption of pollution prevention measures.
- Establish a community-based strategy for reducing community and worker exposure to environmental pollutants.

### **METHODS:**

- Identify leaders in the targeted community, involving 8 cities, and in the medical community.
- Analyze existing environmental data in the targeted community to identify data gaps.
- Identify priority community health issues through surveys and focus groups.
- Educate residents, workers, and medical providers.
- Develop and implement a pilot program that offers solutions to identified environmental health problems.
- Develop and implement exposure reduction strategies, with an emphasis on pollution prevention measures.

### **LOCATION:**

- South East Los Angeles includes a number of pollution sources, e.g., highly industrialized tracts where chemicals are released, severe urban smog, occupational exposures, and lead poisoning. This zip code area is the dirtiest subregion within the State of California. The area is home to a low-income population, approximately 87% Hispanic/Latino.

## **RURAL COALITION - THE COMMUNITY-RESPONSIVE PARTNERS FOR ENVIRONMENTAL HEALTH (Principal Investigator: Lorette Picciano-Hanson)**

### **OBJECTIVES:**

- Develop a partnership among members of a National Advisory Board of community representatives, local health care providers, and environmental health scientists.
- Implement a partnership model in two communities which will develop specific collaborative projects to achieve measurable results in identifying, preventing, and mitigating exposures.
- Build competency in environmental health assessment and community training.

### **METHODS:**

- Help train the targeted communities to define the problem, analyze the causes, research the solutions, and develop community strategies to solve the problem.

- Train community members to conduct exposure assessment, focusing on development of skills in analysis, record keeping, and attention to detail and protocols.
- Train health care providers in occupational and environmental medicine.
- Empower community to reduce exposure to hazards through education and training.

#### **LOCATIONS:**

- Sumter County, AL. Contains the largest toxic waste dump in the U.S. Seventy percent African-American.
- El Paso, TX. Farmworker community in West, TX.

#### **CLARK UNIVERSITY–NUCLEAR RISK MANAGEMENT FOR NATIVE COMMUNITIES (NRMNC) (Principal Investigator: Dianne P. Quigley)**

#### **OBJECTIVES:**

- Establish collaboration among investigators at Clark University in Worcester, MA and Native American community and health care organizations in Oklahoma and Nevada.
- Increase awareness in Native American communities exposed to radiation contamination from DOE sites.
- Enable these communities to resolve health concerns related to radiation contamination in their environment.

#### **METHODS:**

- Identify priority community health research and information needs.
- Develop a “train the trainers” program via collaboration among scientists, community representatives, and health care providers.
- Implement community and health care education modules.
- Design and implement a plan for risk management and prevention activities.
- Share relevant materials and strategies with other Native American communities.

#### **LOCATIONS:**

- Western Shoshone Nation near the Nevada Test Site.
- Cherokee Nation at Sequoyah Fuels, OK, a uranium processing facility in operation for 23 years.

#### **LAOTIAN ORGANIZING PROJECT OF THE ASIAN PACIFIC ENVIRONMENTAL NETWORK, RICHMOND LAOTIAN ENVIRONMENTAL JUSTICE COLLABORATION (Principal Investigator: Peggy K. Saika)**

#### **OBJECTIVES:**

- Develop a model of research, outreach, education, and communication that addresses the immediate environmental health needs of the communities population.
- Build community capacity to understand environmental health issues.
- Develop appropriate tools to reach this limited-English-speaking population.

**METHODS:**

- Representatives from the main Laotian tribal groups will participate in recruitment and training of community organizers.
- Design needs assessment strategy and implement community outreach and publicity activities.
- Develop a training curriculum for 39 community advocates to carry out the needs assessment.
- Train community advocates on environmental hazards including location of toxic sites relative to where Laotians live and garden, consumption of fish, occupational health and safety issues, and determine understanding of lead hazards and knowledge of available interventions.

**LOCATION:**

- Richmond, CA. Over 350 industrial facilities encircle Richmond, including waste incinerators, oil refineries, pesticide and fertilizer plants, and other chemical manufacturers. Laotians in the area have the highest percentage of contaminants from urban gardens and fish. Few are English literate.

**UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE, BALTIMORE  
ENVIRONMENTAL JUSTICE YOUTH PROJECT (Principal Investigator:  
Barbara Sattler)****OBJECTIVES:**

- Increase awareness and understanding of urban environmental health issues.
- Organize a city-wide Environmental Justice Youth Conference (EJYC).
- Develop a comprehensive health assessment plan to be used by non-expert community residents.
- Initiate an environmental health awareness program focused on asthma.

**METHODS:**

- Characterize the distribution of air pollutants and evaluate the contributions of hazardous particles emitted from major sources, including incinerators and diesel emissions.
- Train students in environmental health research via participation in data collection and analysis.
- Introduce students to the complexity of environmental regulatory and policy decisions as they evaluate research results.
- In conjunction with Adolescent Clinics, the EJYC will help develop an awareness program for teens on environmentally related respiratory problems with a focus on asthma.

**LOCATION:**

- Baltimore, MD. A wide array of environmental insults, including: poor air quality; aging industry with variable environmental controls; older housing stock with lead

contamination; diesel powered buses; significant rodent and pest problems; inadequate delivery of basic services. Inner-city Baltimore HS students, mostly African-American, constitute EJYC.

## **WEST HARLEM ENVIRONMENTAL JUSTICE PARTNERSHIP: EXPANDING THE COMMUNITY RESEARCH AGENDA (Principal Investigator: Peggy M. Shepard)**

### **OBJECTIVES:**

- Inform and empower predominantly low income people of color about the disproportionate levels of pollutants to which they are exposed.
- Establish effective communication linkages between community residents, environmental health researchers, and health care providers who live and work in West Harlem.
- Develop environmental health leadership around identified hazards through education and training provided by environmental health researchers and health educators.
- Document and evaluate the efficacy of the proposed project to enhance awareness and understanding of environmental health concerns that impact Northern Manhattan communities.

### **METHODS:**

- Hold public forums at which environmental issues that impact neighborhoods will be addressed.
- Provide training sessions for health care providers on environmental health awareness.
- Recruit, train, and certify twenty residents from each community on environmental health concepts and issues, including environmental justice, Develop leadership training manual and informational pamphlets for use in training sessions and during planned presentations.

### **LOCATIONS:**

- Central Harlem, population of 115,000, 85% African-American, 10% Latino, 41% unemployed.
- West Harlem, population 107,000, 39% African-American, 36% Latino, 19% Caucasian; 73% new arrivals are from Dominican Republic.
- Washington Heights, population 190,000, 18% African-American, 67% Latino (mostly Dominican), 15% Caucasian. There are a wide variety of outdoor and indoor environmental exposures affecting residents of these areas, including particulate matter and carbon monoxide generated by truck and bus traffic, sulfates and nitrates from a sewage treatment plant, lead paint, and allergenic debris from roaches and rodents.

**UNIVERSITY OF MASSACHUSETTS--LOWELL SOUTHEAST ASIAN  
ENVIRONMENTAL JUSTICE PARTNERSHIP (Principal Investigator: Linda Silka)**

**OBJECTIVES:**

- Increase community awareness of basic environmental health concepts, issues, and resources.
- Ensure the community has an ongoing role in identifying and defining problems and environmental risk.
- Ensure health providers and environmental health scientists are aware of environmental risks and concerns of community residents.

**METHODS:**

- Develop a working partnership among the Southeast Asian groups in Lowell that will provide a culturally organized focus for identification of environmental health problems with the community.
- Develop a culturally appropriate media presentation, including geographic information systems, to serve as a stimulus to assess environmental health priority concerns as perceived by the community.
- Begin a process of solving identified problems and focus on how to sustain community activism.

**LOCATION:**

- Lowell, MA contains a Superfund site and 97 additional confirmed and suspected hazardous waste sites. It ranks fourth in the state in rate of reported toxic released and has a long history of industrial contamination. The county is fourth in the nation in hazardous waste generation and ninth in industrial air emission from incinerators. Many of the residents are Southeast Asian, mostly Cambodian and Laotian.

**SILICONE VALLEY TOXICS COALITION –SILICONE VALLEY ENVIRONMENTAL  
HEALTH & JUSTICE PROJECT (Principal Investigator: Theodore G. Smith)**

**OBJECTIVES:**

- Enable low-income minority communities to identify and effectively address toxic chemical hazards where they live, work, and play.
- Improve the health of the community and workers by increasing knowledge of and reducing exposure to hazardous chemicals.
- Promote pollution prevention and improved health and safety practices within the high tech electronics industry and the related service sectors.

**METHODS:**

- Produce educational materials, conduct educational outreach including cultural programming and conduct a public awareness media campaign.

- Develop and implement a training program for community members and medical care providers.
- Promote institutional change and policy development to reduce and prevent toxic exposures.
- Develop and sustain partnership of community, scientists, and health professionals, recruit members and develop leaders for community-based organizations and develop the organizational capacity and funding to sustain the project over time.

#### **LOCATION:**

- Santa Clara County, CA  
The area known as Silicone Valley is home to the electronics industry and contains 29 Superfund sites. A large percentage of the is comprised of people of color, the majority of whom live near the sites and work in the industries that contribute to the contamination.

#### **UNIVERSITY OF NORTH CAROLINA, CHAPEL HILL--SOUTHEAST HALIFAX ENVIRONMENTAL REAWAKENING (Principal Investigator: Stephen B. Wing)**

#### **OBJECTIVES:**

- Expand environmental health knowledge of Halifax County citizens and health professionals.
- Increase local participation in prevention and remediation of environmental health problems.
- Improve environmental health in the rural South by supporting grassroots leadership and community empowerment.
- Develop education and organizing material for use in other areas; provide outreach to communicate in ten eastern North Carolina counties; offer training in rural environmental health and environmental justice issues to public health students.

#### **METHODS:**

- Present collaboratively developing training materials and workshops on environmental health issues to community members.
- Provide quantitative analysis of the racial and socioeconomic characteristics of areas that host intensive livestock operations.

#### **LOCATIONS:**

- Tillery, Halifax County, NC
- Counties comprising the Black Belt in Eastern NC.  
Intensive hog operations have rapidly increased in this area over the last decade. NC now ranks second in the country in hog production. Ground water pollution is a particular threat to poor rural residents who depend on shallow wells.