

SECTION 5.0 ENVIRONMENTAL JUSTICE GUIDELINES AND RECOMMENDATIONS

5.1 Background

The guidelines below were developed by MACEJ based on a variety of perspectives that the council considered important in trying to achieve the mandate tasked by the Maryland General Assembly. The guidelines were developed on foundations of equity, economic development, public health, environmental protection, and institutional, political, and socio-political commitment. These guidelines have led to a variety of recommendations that will provide utility or at the least begin to form the foundations for more systematic resolution to environmental justice issues in Maryland. Additionally, MACEJ has made 'additional' recommendations that need further development. MACEJ considers these recommendations extremely important, however, because they involve legal, health, and scientific approaches that are beyond the expertise of MACEJ, the recommendations should be examined more closely by the permanently established Council recommended herein and implemented accordingly.

5.2 GUIDELINES

1. Environmental protection and opportunities must be implemented and made available in a fair and equitable manner throughout the State of Maryland.
2. All current environmental laws and regulations must be implemented, enforced, and adequately funded.
3. The citizens of Maryland should be guaranteed equal and meaningful access and input into the siting of public and private sector facilities that require environmental permits.
 - There must be a greater commitment for citizens' right-to-know, particularly in communities with multiple pollution sources; and
 - Information must be made easily accessible, in a proactive way, to citizens and conveyed in ways that lay people can understand.
4. Criteria should be established and evaluations conducted to better determine which Maryland communities are most subject to intensive pollution (affected communities).
5. Affected communities should receive additional assistance which should include:
 - Undertaking exhaustive studies and ongoing monitoring should be undertaken in the most polluted communities to determine the correlation, if any, between polluting chemicals and specific illnesses present in those communities;
 - Targeting efforts to expand environmental opportunities (environmental jobs, education, and recreation) towards communities traditionally hard hit by concentrated pollution;
 - Establishing a commitment in Government to provide technical and legal assistance to affected communities;

- Ensuring the availability of healthcare services to low-income communities that are near or may be affected by contaminated sites should be ensured. Programs must be instituted to address health effects that are associated with environmental contamination;
 - Establishing an "environmental justice protocol" which would allow states and local agencies to consider the cumulative impact of existing pollution when providing permits and providing funds (See Appendix D for examples of proposed protocols and methodologies);
 - Giving affected communities priority for evaluation, clean up and funding for contaminated sites;
 - Involving citizen groups in the decisions regarding the management of affected areas;
 - Developing and implementing an ongoing monitoring program of ambient environmental conditions;
 - Undertaking epidemiological studies to establish correlation and trends in minority communities; and
 - Allowing affected citizens and communities legal standing.
6. Pollution prevention methodologies must be used systematically and encouraged at the front end of production, rather than simply relying on tertiary and secondary methods.

5.3 MACEJ GENERAL RECOMMENDATIONS

Executive Order

On February 11, 1994, President Clinton signed executive order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. This Executive Order requires each federal agency to make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions.

MACEJ recommends that we follow a similar approach. We are thus recommending that the Governor of Maryland issue an Executive Order (See Appendix B). Under the terms of the Executive Order, each state agency should be required to develop an agency-wide environmental justice strategy to evaluate and incorporate environmental justice issues into their operations. "Environmental Justice" seeks to ensure that no population is forced to shoulder a disproportionate burden of the negative human health and environmental impacts of pollution or other environmental hazards. MACEJ's recommendations should be viewed as one component of the overall effort to address such disproportionate burdens in low-income communities and minority communities. The proposed executive order should include the following:

- The basic tenets of environmental justice hearken back to the consistent themes that have been advanced by the Administration: safe communities, economic development, education, environmental protection and empowerment. It also fits well in keeping the promotion of the concepts of fundamental fairness and inclusion throughout the State.
- It should strongly reject the prevailing notion advanced by some factions of industry and states that environmental justice programs are a hindrance to economic development and state regulatory processes. Most importantly it should emphasize the need to balance economic development and environment in everything we do. It should send the message, as Marylanders have throughout the history of this state, that this balance might be effectively accomplished.
- A strong statement that:
 1. All state agencies should collaborate to identify key environmental hazards and barriers to recognizing hazards that may affect the health and quality of life of people who live in communities believed to be at risk. Where necessary, based on assessments of hazards and exposure, conduct biologic testing of individuals believed to be exposed. This effort may result in the development and implementation of appropriate public health actions, based on demonstrated need, including actions recommended preventing or reducing current exposures to toxic substances.
 2. State agencies should assess the potentially harmful impact on high-risk populations of exposure to key environmental hazards.
 3. State agencies should empower and educate the community about environmental hazards. Evaluate impact of educational efforts to ensure that health care providers familiar with the recognition and treatment of illness associated with exposure to environmental hazards.
 4. State agencies should enhance capacity building in state and local health departments, environmental departments, academic institutions, and community non-profit groups to address environmental public health issues associated with minority health.
 5. Through collaborative efforts, state regulatory agencies and other federal agencies should increase the awareness of the importance of environmental public health among students at Head Start Centers, other preschools, and primary through college-level institutions.
 6. State agencies should provide pollution prevention and health promotion education regarding exposure to environmental hazards.
 7. State agencies should ensure that efforts occur that lead to enhanced community empowerment and involvement in addressing environmental public health issues.
 8. State agencies should identify and coordinate state and federal actions to address environmental health issues in MD.
 9. State agencies should evaluate and disseminate the effectiveness of strategies to prevent health and environmental impacts of key environmental hazards.

- The Order should explore and expand existing synergies between EJ and Smart Growth by:
 1. Asking state agencies incorporate environmental justice concerns in their evaluation of priority funding areas, rural legacy and farm preservation component, etc;
 2. Encouraging the State Department of General Services – when leasing, building or renovating services to consider EJ issues;
 3. Exploring the context of spatial configuration and the impact on communities. For example. proposed arterial connections, highways or existing routes serving as barriers between communities. EJ practices should encourage the implementation of environmental infrastructures as environmental definers;
 4. Exploring the relevance of interstate and other compacts to EJ practices. These include Army Core of Engineers flood control facilities, critical areas commission and the municipal solid waste compact, etc.;
 5. Emphasizing the State's efforts in the Smart Growth, urban revitalization and brownfields arenas. The Executive Order should emphasize that all these things are tied to improving our communities and the lot of every citizen in the State of Maryland. All negative speculation that addressing the concerns of environmental justice communities would retard these efforts should be dismissed because of lack of supporting information; and
 6. Ensuring that each State agency provides opportunities for meaningful participation by interested members of the public, including residents of minority and low-income communities, before making decisions that will affect the public.
 7. Fostering interagency coordination among federal, state, local, community agencies, and non profits in all activities related to addressing disproportionately high and adverse environmental health impacts in low-income and minority populations, including public education, training, the provision of services, regulatory activities, data collection, and research.

Maryland Commission On Environmental Justice and Sustainable Communities

MACEJ recommends that the proposed Executive Order establish a Commission on Environmental Justice and Sustainable Communities appointed by the Governor to provide guidance on environmental justice and community related issues. This Commission could review all Maryland environmental justice-related activities and agency plans for implementation. The Commission should among other things consider the applicability of such things as the Federal National Environmental Policy Act (NEPA) Environmental Justice Guidelines and interlinkages between other government initiatives like Smart Growth and Brownfields.

MACEJ recommends that the Commission be co-chaired by an appointee by the Governor and by the Maryland Department of the Environment. It be comprised of State agency officials, senior management representatives from MD state agencies with environmental health responsibilities, liaisons from other key Federal agencies, community agencies, citizens, etc. This subcommittee should include representatives from MD member agencies as well as from the Offices of the

Baltimore Urban League and the NAACP, MD Office for Fair Practice, the Administration for Children and Families, and the Health Care Financing Administration.

The Commission should among other things:

- Identify and establish ways of better using the Maryland Smart Growth and Brownfields programs to address needs and goals relevant to disproportionate environmental health burdens in low-income and minority populations. Many of the existing priority areas and objectives – create a new health community indicator system (such as Environmental Health, Cancer, and Occupational Safety and Health) have relevance to these disproportionate environmental health burdens and can be used as focal points for interagency activity;
- Coordinate plans and activities between federal, state, tribal and local agencies and community organizations through regional health officials and offices of minority health;
- Foster collaboration by conducting a regular conference of high-level scientists from federal environmental health research agencies. Such collaboration is essential in order to generate data needed for key activities (regulation, risk assessment and avoidance, public education, pollution prevention and mitigation) and to help minority and low-income communities improve their environmental health and ensure environmental justice; and
- Promote multiagency representation on working groups, steering committees, and other bodies addressing issues germane to environmental justice.

MACEJ also proposes that the Maryland Commission on Environmental Justice consider the following concepts that require further development:

- Developing a program that would ensure the availability of health care services to low income and minority communities that are near or may be affected by contaminated sites. Programs must be instituted to address health effects that are associated with environmental contamination;
- Providing legal assistance to affected communities;
- Establishing EJ Protocols/Criteria to be used in either limiting or evaluating permitting activity in heavily polluted communities;
- Developing and implementing of an ongoing monitoring program of ambient environmental conditions in affected communities; and
- Incorporating environmental justice concerns into State Clearinghouse reviews.

Office of Environmental Justice

Objective 1: The Council recommends the establishment of an office of environmental justice within the Maryland Department of the Environment to increase the state's capacity to respond to EJ issues. This new office would ensure that members of the public are meaningful partners in all appropriate departmental activities to address the health impacts of disproportionately high environmental

hazards in low-income and minority communities, including education, training, provision of services, data collection, and research. The functions of this office should include the following strategies:

- Integrating and coordinating the relationship between the Agency's EJ and Smart Growth activities. For example, emphasis should be placed on priority funding areas, rural legacy and farm preservation component, etc;
- Coordinating efforts for environmental justice public outreach/participation meetings, including extra efforts at notification, presenting printed and oral materials in an understandable manner and one consistent with the diversity of the audience;
- Developing and maintaining community profiles including knowledge/inventory of local officials and community leaders, local issues of concern etc;
- Establishing and maintaining relationships with media;
- Maintaining calendar of regulatory activities in affected communities;
- Educating citizens how to access information pertaining to council meetings/permit hearings and other agency activities;
- Ensuring participation by all state agencies, citizens, and the private sector in the guidance development stage;
- Providing training or workshops to companies on how to set up effective community outreach programs;
- Providing awareness training for community groups on environmental activities;
- Using alternative dispute resolution techniques, if appropriate;
- Targeting efforts to expand environmental opportunities (environmental jobs, education, and recreation) towards communities traditionally hard hit by concentrations of pollutants. Examples could include brownfields, urban revitalization projects;
- Developing GIS tools for Maryland that incorporates community health indicators. Using GIS and other available tools to assess enforcement, compliance and permitting practices to determine impact of policies on communities. Establishing criteria and evaluate issues to better determine affected communities. Assessing environmental conditions regionally; using such factors as EPA Clean Water indicators to identify areas in need of restoration and impacts to living resources. River systems in need of restoration directly impact the quality of living resources and the individuals who use these systems for sustenance and/or recreation;
- Working with affected communities and potentially affected communities to enhance their capacity to participate in the partnerships;

- Engaging the public's involvement in identifying a full range of alternative approaches to developing a broad-based consensus on what the objectives should be to address disproportionate environmental hazards in low-income and minority communities, and on how to achieve those objectives; and

Objective 2: Provide mechanisms by which each relevant state agency can develop public participation plans, action agendas and projects. Strategies should include:

- Initiating community based pilot projects including such concepts as:
 1. Developing proactive healthcare strategies to identify and reduce illness caused by environmental pollutants (point and non point source);
 2. Examining the status and trends of respiratory illnesses, particularly asthma, by mapping prevalence in neighborhoods, counties, or by zip codes;
 3. Providing Technical Assistance Grants (TAG) to assist community to better respond to eminent LULU's siting;
 4. Institutionalizing the testing for lead: e.g. mandatory prenatal and natal testing, routine blood testing for elementary school age children, etc.;
 5. Promoting and marketing incentives and small grant programs to assist communities and residents in cleaning up neighborhoods (i.e. sanitation, landscaping and pest control);
 6. Developing performance standards and best management practices to ensure that low/moderate housing and public facilities are environmentally safe, sound and energy efficient;
- Improving the working relationships within and among federal, state, local, community agencies, and non-profits agencies and the public in order to facilitate and maintain credible and open decision-making processes and to coordinate and integrate public participation activities.
- Encouraging cooperation between federal, state, local, community agencies, and non-profits in identifying and resolving major issues that are relevant to the objectives of the executive order.
- Educating state, local, community agencies, and non profits and other entities pursuing environmental justice-related activities funded by MDE and EPA and other state agencies about public participation objectives, and encourage them to meet those objectives.

Encourage Local Public Participation, Outreach, Education, Training, and the Development of Environmental Opportunities

Objective 1: Educate residents and workers in affected communities through effective outreach, education, and risk communication. Strategies should include:

. Enhancing public participation through:

- **Undertaking public forums to address community-specific environmental justice issues;**
- **Including local business, civic, community, environmental organizations, and government agencies (stakeholders) on mailing lists for outreach meetings;**
- **Targeting affected areas as soon as possible and scheduling public forums in those areas;**
- **Circulating notices of meetings with a "grass roots" approach;**
- **Advising citizens on groups/agencies to contact so they may have equal and meaningful access and input concerning siting of polluting public/private sector facilities;**
- **Continuing with comment sheets at public forums to gather information from participants;**
- **Making available copies of the recorded meetings to interested participants;**
- **Holding a debriefing or an evaluation by council members immediately following forums;**
- **Coordinating efforts for environmental justice public outreach/participation meetings, including extra efforts at notification and presentation of printed and oral materials in an understandable manner and one consistent with the diversity of the audience;**
- **Assisting in the formation of citizen committees that will be involved in the decisions regarding the management/development/cleanup of affected communities;**
- **Making criteria used to assess environmental justice both accessible and understandable to the public in order to facilitate the reporting of issues and incidents;**
- **Developing a plan of action in collaboration with target communities that includes scientific investigation as well as appropriate educational campaigns to educate minority and low-income populations about environmental and occupational hazards; making sure that educational materials are appropriate and understandable;**
- **Conducting training workshops in health-risk communication and providing education for community members and workers; teach workers and members of low-income and minority communities about the relationship between pollution and adverse health effects and about the importance of various disease-prevention approaches, including pollution prevention and hazard abatement; and**
- **Engaging low-income and minority children, youth and their families in activities, which address health impacts of disproportionately high and adverse environmental exposures through schools and other early learning initiatives.**

Objective 2: Establish strong ties with citizens, community-based organizations, workers' groups, public health agencies, and educational and religious institutions that may be able to help increase awareness of environmental hazards among those at risk. Strategies should include:

- Identifying barriers that may inhibit agencies from developing positive working relationships with these organizations;
- Educating MDE and other state agencies staff about the disproportionate environmental and health burdens in low-income and minority populations; sending agency staff to visit affected communities whenever practicable and appropriate;
- Identifying a mechanism for conducting ongoing relations with community-based organizations and leaders, public health agencies, and educational institutions within affected communities and with those interacting with these communities, especially historically black colleges and universities and other minority institutions;
- Encouraging health professionals serving low-income and minority populations to participate in environmental and occupational health education workshops, scientific meetings, seminars, and other forums designed to enhance their knowledge of possible adverse health outcomes associated with exposure to environmental and occupational hazards; and
- At the request of community organizations, conduct environmental health education seminars on the possible health effects of exposure to environmental and occupational hazards. The seminars should be preceded by research to validate or invalidate communities' concerns. Essentially, the communities' concerns should be treated like hypotheses to be researched.

Objective 3: Make environmental and occupational health data more available to the public and inform the public of how to gain access to this data. Strategies should include:

- Using community-based directories of organizations and individuals that promote environmental and occupational health awareness among underserved and low-income and minority populations to identify partners for collaborative educational and information-sharing activities;
- Establishing repositories of environmental and occupational health data in public schools, public libraries, community colleges and universities, community organizations, and State Offices of Health and the Environment;
- Continuing efforts to expand the amount and scope of health information that is made available to the public; for example, make data from several surveys and the vital statistics program available on CD-ROM and in computer microdata tape format and on Internet; and
- Collaborating and consulting with members of at-risk communities, workers, and national minority organizations to determine the most effective methods of translating and disseminating occupational safety and health information

Objective 4: Focus training efforts to enhance the availability of specific skills and services needed by low-income and minority populations affected by disproportionately high and adverse environmental exposures. Strategies should include:

- Protecting low-income and minority workers disproportionately represented in hazardous occupations with programs to promote safe workplaces and work practices, including efforts

such as the MDE program to train hazardous waste workers in the proper procedures to use when cleaning hazardous waste sites and disposing of hazardous materials;

- Expanding on existing occupational and environmental medicine training opportunities, including professional training, continuing medical education, and curriculum development, for health care providers and public health personnel who serve a significant number of the minority and low-income populations at high risk for occupational exposure, and work with the professional organizations and societies of these providers continue to build an adequate workforce of environmental medical expertise that can help address the environmental health needs of low-income and minority populations disproportionately affected by high and adverse environmental exposures; and
- Training residents of minority and low-income communities for certification in cleanup and remediation of environmental hazards.

Develop the Appropriate Information, Resources, and Services

Objective 1: The proposed Office of Environmental Justice and the Commission appointed by the Governor should develop specific methods for understanding and measuring disparate impacts in distressed communities. This recommendation will clearly have broad impact on the state permitting process. Strategies in this area should include:

- Using of current techniques that have been developed by EPA. These include proximity-based analysis, risk-based analysis, exposure modeling, relative burden analysis, and environmental justice index analysis. Additionally, MACEJ is recommending the use of disparate impact tests (See Appendix D); and
- Defining disparate impact and develop definitive measuring tools for Maryland.

How do we define “disparate impact”?

In attempting to define “disparate impact” there has to be recognition that no one standard will fit the myriad of situations across the country that might be involved in this area. The first step in determining whether there is a disparate impact would be the development of baseline information. Such baseline information must be generated on a case by case basis and geared to the specific conditions of a state.

A disparate impact would exist when a minority community’s exposure to harm (as defined below) exceeds the established baseline by some reasonable measure and is disproportionate to other communities. The reasonable level would have to be determined on a case by case basis, since the actual impact may be different depending on the type of pollutants involved. If the chemical is highly toxic then even a small amount above background levels could create a disparate impact. Some consideration should also be given for situations where numerous facilities are involved because the threshold for whether a disparate impact exists may be different because of the numerous pollution sources involved.

How do we define an "impacted community"?

Under Title VI an "impacted community" would be a minority community that has suffered any of the harms (as defined below) or is in substantial risk of harm as a result of its location to a facility or a regulated activity of the facility. The harm should be directly linked to the operation of the facility.

What constitutes harm?

The standard should be the demonstration of discrete, identifiable, adverse impacts from a facility on a minority community or the substantial risk of adverse impacts to the community. Such effects should include, but not be limited to:

- Bodily harm, infirmity, illness, birth defects, or death;
- Major air, water and land pollution;
- Destruction or disruption of natural resources
- Destruction of or disruption of cultural values;
- Displacement of persons, businesses, farms, or communities;

This approach may be problematic because health impacts may take years to manifest. Another problem with this approach is the fact traditional methods of calculating risks have focused primarily on one contaminant and one pathway. In many cases this type of analysis has proved to be inadequate in assessing the risks associated with many communities, including environmental justice communities. For instance, where we are dealing with a community that has potential exposures from several facilities, the issues are much more complex. In those situations the data and the analytical tools to address multiple, cumulative or synergistic effects either do not exist or are of poor quality and usefulness.

Measuring disparate impact

In order to determine whether there has been disparate impact agencies should identify a geographic scale that will obtain relevant demographic information on the potentially impacted area. Utilizing an integrated geographic information system (GIS) to display census data spatially can provide agencies and the public with an effective tool in visualizing the distribution of health and environmental impacts in the area of concern. Since this data has always been problematic in actually capturing accurate figures on minority communities, this information should be supplemented by other sources if possible. The two prevailing methods of measuring disparate impact appear to be proximity analysis and exposure modeling. A combination of both approaches may be relevant depending on the facts of the case.

Proximity or Radius Approach Analysis - an EPA Methodology

Simple proximity or radius approach analysis involves drawing a circle around a facility at a fixed distance to be determined and describing the demographics of the community within the circle. Measuring impacts based solely on proximity could be problematic in that mere reliance on proximity analysis could result in a finding of no impact on those most affected by a permitted facility and a finding adverse impact on those not affected or only slightly affected by a facility.

Examples:

- Impacts of air emissions from high stack sources are generally greater at some point downwind of the source rather than at the facility itself; and
- Similarly, adverse groundwater impacts from permitted facilities are not always localized.

Exposure Modeling - an EPA Methodology

In exposure modeling a scientific determination is made of who would actually be affected by the contamination. Once again, experience in modeling multiple, cumulative and synergistic exposures have been limited.

Objective 2: Identify specific disproportionately high and adverse environmental hazards affecting workers and people in minority and low-income communities, identify the health problems associated with these hazards, and identify the needs and concerns of the people affected. Strategies should include:

- Soliciting information on specific environmental and occupational hazards and on people's health needs;
- Developing a method by which to assess local problems; use the assessment method as a basis for community education and involvement. Where appropriate, work through existing local groups and networks;
- Targeting existing MDE programs to train and equip residents of minority and low-income communities to carry out community and residential audits of environmental hazards; and
- Designing appropriate responses to address the problems identified.

Objective 3: Assess the capacity of low-income and minority communities affected by disproportionately high and adverse environmental exposures to diagnose, treat, and prevent environmentally sensitive environment problems, and as appropriate, seek to remedy any deficiencies. Strategies should include:

- Providing technical assistance to low-income and minority communities impacted by disproportionately high and adverse environmental exposures to develop primary and preventive health programs aimed at specific environmental and occupational hazards;
- Providing, as necessary, environmental and medical testing of communities and workers with disproportionately high and adverse environmental exposures to determine the extent of exposure to hazardous substances;
- Identifying community resources and barriers to healthcare in order to promote access to primary care services in disproportionately affected communities; consider translation and outreach services, transportation, evening hours, and types of healthcare services available; and

- Working with state primary care associations and other state and local agencies to assure access to quality environmental and occupational medical care in affected communities.

Objective 4: Take advantage of existing MDE and DHMH programs that promote the economic potential of individuals and communities and provide opportunities for meaningful career development. Use these programs as appropriate to advance the goals of the proposed executive order by promoting the development of necessary environmental remediation and related services within disproportionately affected low-income communities and minority communities so as to provide them with an economic return.

Information Gathering, Data Collection and Analysis

Objective 1: Improve the collection of monitoring and surveillance data on disproportionately high and adverse environmental hazards in minority and low-income communities and on the health status of residents. Strategies should include:

- Improving MDE and DHMH efforts to collect, maintain, and analyze data on disproportionately high and adverse exposures to environmental hazards, and on indicator conditions (health outcomes associated with important environmental factors) in minority and low-income communities;
- Ensuring wherever possible and appropriate, that the data collected is sufficient to permit analysis of any linkages between exposures and health outcomes; and
- Working with state, local, and tribal health officials, environmental health officials, regional health officials, and other federal agencies to improve health and environmental surveillance and monitoring activities in minority and low-income populations disproportionately impacted by high and adverse environmental exposures.

Objective 2: In disproportionately and adversely affected minority and low-income communities, focus studies so as to provide low-income and minority residents with effective surveillance, monitoring, treatment, and prevention of adverse health effects. Strategies should include:

- Using existing and new data to identify and target communities with disproportionately high rates of adverse effects from hazardous environmental conditions;
- Developing a coordinated, comprehensive program capable of addressing multiple environmental health and social problems in low-income and minority communities with disproportionately high and adverse exposures;
- Fostering active partnerships and collaborations across Maryland, with state, local, and tribal governments, with private and voluntary sector groups, and with affected low-income populations and minority populations with disproportionately high and adverse environmental exposures; and

- Involving members of the public in activities to collect data in affected communities wherever feasible and appropriate.

Objective 3: Use information from State birth and disease registries to investigate the health effects of disproportionately high and adverse environmental exposures in low-income populations and minority populations. In this area the recommended strategies would be:

- Evaluating existing registries and make recommendations regarding the methodologies they use; and
- Consulting with and assisting local municipalities as appropriate to improve the capacity of their birth and disease registries.

Develop More Appropriate Health Coordination and Research

Objective 1: Design environmental and occupational health research programs within Maryland in partnership with minority and low-income communities. Strategies should include:

- Working with DHMH, EPA and universities to develop research into areas of cumulative, synergistic and multiple risks. Exhaustive studies and ongoing monitoring should be conducted in the most polluted communities to determine the correlation, if any, between polluting chemicals and specific illnesses present in those communities;
- Identifying mechanisms such as regional meetings, register notices, and advisory and review bodies that can be used to engage the participation of low-income and minority communities and workers in the assessment, design, and conduct of environmental and occupational health research;
- Promoting and institutionalizing public participation in all phases of research through focus groups and peer review procedures;
- Incorporating information from low-income and minority communities and workers on their diseases and exposures when devising any environmental and occupational health research agenda; and
- Collaborating and coordinating with community-based organizations, business and industry, academia, labor, and health professionals concerned about disproportionate environmental and health burdens in low-income and minority populations to develop new and relevant models for health research.

Objective 2: Identify and characterize environmental and occupational factors that have the greatest disproportionate adverse impact on the health status of low-income and minority communities. Strategies should include:

- Compiling and documenting the extent of the problem by analyzing available data; document gaps in critical information;

- Identifying high-risk populations, communities, industries, and occupations and document the environmental and occupational factors that have the greatest adverse impact on human health;
- Conducting epidemiological research and surveillance on illnesses and injuries that disproportionately affect minority and low-income workers;
- Having studies include on additional exposures due to such factors such as subsistence consumption of fish and wildlife and that study indicators are appropriate to the group, population, or community under study;
- Using and developing new models for occupational and environmental science research that can be used in population-, community-, and industry-based studies of 1) exposures and diseases among small numbers of people, 2) human exposures to low levels of a known environmental or occupational hazard (especially chronic, low-level exposures), 3) human exposures to combinations and mixtures of hazards at low levels for extended periods and at acute levels for short periods, and 4) new biological markers that can be used in identifying risk factors; as appropriate in the analysis of disproportionate adverse environmental and health impacts on low-income and minority communities; and
- Keeping community members informed of the results of studies.

Objective 3: Establish a coordinated program of environmental and occupational health research among the MD agencies that is consistent with an overall departmental strategy for addressing disproportionate environmental and health burdens in low-income and minority populations. Strategies in this area should include:

- Maintaining a structure within the newly established Maryland Committee on Environmental Justice and Sustainable Communities that will provide ongoing monitoring and evaluation of health research activities relevant to addressing the disproportionate environmental and health burdens in low-income and minority populations;
- Establishing and documenting specific coordination processes that address emerging issues in environmental and occupational health research;
- Establishing health research priorities in Maryland, including issues of disproportionately high and adverse environmental health impacts in low-income and minority populations, through a regular science and non - science managers' conference; and
- Designing and supporting collaborative interagency environmental and occupational health research projects to address adverse health impacts that fall disproportionately on low-income communities and minority communities.