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HHSW-1. Health Impacts Assessments of the Climate Change Action Plan

Option Description

Options considered to prepare for and respond to climate change may have considerable health consequences for residents of Maryland. Therefore, a mechanism is required to assess the public health consequences of proposed mitigation and adaptation policies and measures prior to their adoption. Health Impact Assessments (HIAs) are a proven approach to ensuring that potential public health concerns are identified and addressed before they become a problem. The World Health Organization describes the value of an HIA in this way: “HIA provides decision makers with information about how any policy, programme or project may affect the health of people. HIA seeks to influence decision makers to improve the proposal” (<http://www.who.int/hia/en>).

A HIA should be conducted, at a minimum, whenever an Environmental Impact Assessment is required or if a proposed policy is expected to have a health-related and/or fiscal impact. HIA also can be used to identify the co-benefits of smart growth and development policies.

Option Design

Health Impact Assessments would be required as a part of mitigation and adaptation strategy evaluation. There are several mechanisms by which this option could be implemented, including through a legislative mandate that would require a letter sign-off by the Department of Health and Mental Hygiene on proposed mitigation and adaptation policies and measures that need an Environmental Impact Assessment.

The formal process of an HIA involves the following steps:

- 1. Screening:** This involves a rapid assessment of whether the policy would require a formal, detailed HIA or a relatively limited assessment. The Department of Health and Mental Hygiene would perform this step on proposed policies, and the results reported as a recommendation for either a more formal HIA or a limited staff assessment.
- 2. Scoping:** If a formal HIA is recommended, DHMH would work with the group proposing the option and other interested parties to define the objectives of the HIA, key participants, and potential data needs.
- 3. Appraisal:** This is the actual analysis. An example might be, for a given large policy option, an analysis of the affected population(s), distributional and equity considerations, health resource requirements, health infrastructure implications, etc. In addition, there is a presentation of potential alternatives to reduce or mitigate potential health consequences of the proposed policy.
- 4. Monitoring and Evaluation:** This phase involves the monitoring and evaluation of the adopted policy’s implementation; to make corrections as needed to ensure the policy’s effectiveness and its protection of human health.

- **Targets and Timing:** Adoption of HIAs as a formal requirement for policy alternatives considered to mitigate or adapt to climate change would be implemented immediately, with immediate benefit for the residents of Maryland.
- **Parties Involved:** The Department of Health and Mental Hygiene, together with the Maryland Department of Environment, Maryland Emergency Management Agency, and local health agencies, would review proposed policy options according to the HIA framework. This would be coordinated through the existing Environmental Health Liaison Committee.

Implementation Mechanisms

No statutory change is required to implement this option. It would require adoption of an executive policy that provides for conducting a Health Impact Assessment of proposed policies.

Related Policies/Programs in Place

The development of Environmental Public Health Tracking, a project funded by the Centers for Disease Control and Prevention (CDC), would make available environmental and public health data from a number of surveillance programs within a single browser on the internet. This program may be of benefit to the process of developing HIAs, as it would provide a ready source of historical data and GIS capability.

Implementing this option would facilitate achievement of the goals of the Health Places Act. For example, a HIA was conducted in Georgia for their “BeltLine” policy for transportation and land use (<http://www.cqgrd.gatech.edu/HIA>).

Adaptation Benefits and Costs

- **Capital intensity:** There is no capital required to adopt this policy; however, staff time will be required.
- **Flexibility:** Health impact assessments have been shown to increase the flexibility of proposed policy options, by requiring consideration of policy alternatives.
- **Adaptive capacity:** This proposal would increase the adaptive capacity of state institutions, by incorporating consideration of possible public health considerations at the beginning of the policy process, rather than waiting for adverse consequences to be recognized and mitigated at the end of the policy or implementation process. Further, recognizing possible adverse health consequences early in the process results not only in preventing injuries and illnesses before they occur, but also results in less costly solutions. In addition, the cross-department and agency collaborations developed as a result of HIA increase the capacity of the state to prepare for and respond to climate change risks.

Documentation of Adaptation Benefits and Costs

- **Data Sources:** Information on HIAs is available at <http://www.cdc.gov/healthyplaces/hia.htm>. Data needed for HIAs within the State will be obtained from DHMH, MDE, DNR, MEMA, and a number of other agencies.

- **Quantification Methods:** HIAs would require some staff time and some data on environment and health, which should be available through environmental public health tracking and other sources.
- **Key Assumptions:** There is an assumption that HIAs would be mandatory for climate change policy evaluation, as well as (in the future) for other major development policies.
- **Key Uncertainties:** There are no uncertainties associated with implementing this policy option. .

Additional Benefits and Costs

A substantial additional benefit of HIAs is the potential beneficial impact on the planning process generally. As health benefits (and costs) are taken into account in considering development and planning projects, the State stands to make better decisions regarding growth that benefits current and future residents.

Feasibility Issues

The major feasibility issue is the sufficiency of data and involvement of interested parties. The major successes for HIAs have been in communities with broad input into the process, as well as the development of a range of potential options from which to select.

Status of Group Approval

Barriers to Consensus

HHSW-2. Coordination Across Agencies Responsible for Human Health and Safety

Option Description

A gap analysis will be conducted to determine if there is adequate management, procedures, and coordination of county and city level options to ensure consistency in and capacity for adaptation and response to health-related impacts of climate change across boundaries, including response to large-scale floods and storms, ensuring the safety and protection of drinking water sources and septic systems/waste treatment, and infectious disease outbreaks. One example would include adequate planning and implementation for extreme or wet weather events that can affect surface and groundwater water quality, wastewater, and human health. Drinking water supply that requires a well may need to have COMAR and/or county codes modified to protect the health of populations and the Bay from increasing saltwater intrusion due to climate change. Septic system requirements in COMAR and/or county codes may need to be modified due to increased risk of groundwater elevation from sea level rise.

The gap analysis would be coordinated with the 2008 Federal Gap Analysis, as applicable. Recommendations resulting from the analysis will recognize and account for differences in response capacity between counties and recommend mitigation and augmentation options to minimize disruption in services due to lack of capacity.

Option Design

Targets and Timing: The principal target organizations include DHMH, local health departments, MEMA, Agriculture, Environment, and Maryland Institute for Emergency Medical Services Systems. The gap analysis would require approximately 2 months to plan, 8 months to conduct, and 2 months to evaluate and finalize.

For example, a conclusion of the analysis might be that counties and municipalities may be encouraged to adopt well and septic provisions, including updating Water and Sewer Plans, and to re-map zoning for areas that are at-risk for inundation due to flooding or tidal and storm surges. Requiring de-nitrifying septic systems in the critical area and modified septic systems in areas that are prone to low groundwater tables should be a consideration for both water quality and public health and safety. Several counties have recently passed laws for de-nitrifying septic systems in the critical area.

Counties will need to use watershed-level planning to incorporate an integrated approach to sea level rise. This would include land use planning, building codes, land easements and acquisitions, and others.

Parties Involved: See Targets and Timing.

Implementation Mechanisms

The Office of Preparedness and Response (OP&R) in DHMH would lead the gap analysis, in cooperation with MEMA and other target agencies. Components of the gap analysis will

include: (1) Organization of the response; (2) Benchmarking (from external best practices); (3) Capacity inventory; (4) Information technology and communications; (5) Needs analysis; and (6) State law and policy amendments

Related Policies/Programs in Place

OP&R already has continuity of operations plans (COOP plans) in place for many aspects of DHMH operations, and has worked with local health departments on their COOP plans. Critical issues such as personnel capacity to respond to large-scale events have been discussed in a number of forums, including the Environmental Health Liaison Committee.

Other programs that may require review and/or amendment include:

- MDE – Source Water Assessment Program (SWAP). The Safe Drinking Water Act, as amended in 1996, requires all states (MDE manages this for Maryland) to develop and submit plans to EPA. Source Water Protection is voluntary under Federal law, but the state could require the Program be adopted in specific areas (www.mde.state.md.us/assets/document/watersupply/Andrea_Bennett-06gws.odf)
- MDE – Fish Consumption Advisory for mercury and other contaminants (www.mde.state.md.us/CitizensInfoCenter/FishandShellfish/hom/index.asp)
- MDE – Reporting and Public Notification of Sewage Overflows (www.mde.state.md.us/ResearchCenter/Publications/General/eMDE/vol1no4/overflows.asp)
- Emergency Planning and Right-to-Know Act (EPCRA) for Hazardous Substances (www.epa.gov/oem/content/epcra/index.htm)

Adaptation Benefits and Costs

- **Capital intensity:** There is no capital required to adopt this policy.
- **Flexibility:** The gap analysis will identify barriers and constraints to response, thus increasing the flexibility of the State to respond to large-scale events.
- **Adaptive capacity:** This policy option would increase the adaptive capacity of state institutions by increasing coordination and collaboration, raising awareness of the how to appropriately address the health risks of climate change.

Documentation of Adaptation Benefits and Costs

Data Sources: The gap analysis will require consultation with all participating agencies. Best practices for interagency coordination will be consulted, including the CDC TIDE project: <http://www.bt.cdc.gov/masscasualties/modelcommunities.asp>.

Quantification Methods: Standard gap analysis techniques will be employed.

Key Assumptions: The gap analysis will involve a considerable amount of dedicated staff time from several agencies. Participation of private sector resources is unknown.

Key Uncertainties: None.

Additional Benefits and Costs

The gap analysis will be of benefit for all aspects of agency operations and coordination, as well as specific response to climate change.

Feasibility Issues

Feasibility is critically dependent on inter-agency coordination.

Status of Group Approval

Barriers to Consensus

HHSW-9. Vector-borne Surveillance and Control Programs

Option Description

One of the consequences of climate change that has received considerable attention is the likelihood of changes in patterns of vector-borne diseases. As the climate warms, the geographic range of several insect- and arthropod-borne diseases is likely to expand northward.

The Department of Health and Mental Hygiene, in close cooperation with the Maryland Department of Natural Resources and the Maryland Department of Agriculture, has responsibility for conducting vector-borne disease surveillance and control programs. One example is the West Nile Virus surveillance program that tracks mosquitoes and human cases. This option would entail development of a coordinated plan to assure adequacy of the surveillance program given increased demand associated with climate change.

Option Design

Targets and Timing: A working group will be created between the departments responsible for vector-borne surveillance and control to develop a coordinated plan to assure adequacy of programs.

Significant increases may be required in personnel and resources if surveillance of vectors and cases is to be expanded. Vector surveillance requires collection of specimens, laboratory analysis, and GIS or other spatial analysis in order to follow the physical distribution of the vector. This requires specialists capable of specimen collection, laboratory resources, and data management capacity. While not immediately required, the long lead-time required to recruit and/or train the personnel necessary to fill these specialized positions necessitates advance planning and dedication of resources. For example, some positions may take more than a year to recruit. The lack of trained entomologists could be addressed through providing university scholarships.

Parties Involved: Maryland Department of Agriculture, Department of Natural Resources, and the Department of Health and Mental Hygiene would be involved in development of a coordinated plan. In addition, there would be collaboration with agencies responsible for water storage, storm water management, etc. to ensure that these programs achieve their goals without increasing breeding sites for disease-carrying vectors.

Implementation Mechanisms

The policy option would create a working group between the departments that would prioritize and identify the resources required to meet the increased demands associated with climate change.

Related Policies/Programs in Place

There are currently vector and disease surveillance programs within the state that could meet some (but not all) of the demands associated with increased monitoring of vector-borne diseases

as a result of climate change. The Maryland Department of Agriculture provides mosquito control services, in cooperation with participating county governments (www.mda.state.md.us/plants-pests/mosquito_control/mosquito_control_policy.php). The preferred mosquito control strategy is the reduction of mosquito larvae numbers by source reduction, biological control agents, or use of biological insecticides. Adult mosquito control, by ultra low volume application of insecticide is conducted using aircraft or truck-mounted application equipment in residential areas for nuisance abatement and to protect public health from mosquito-borne disease.

The aims of the USDA Veterinary, Medical and Urban Entomology National Program include to reduce the risk to humans from arthropod-borne and zoonotic diseases (www.ars.usda.gov/research/programs/programs.htm).

The US Fish and Wildlife Service has a mosquito management policy (www.fws.gov/news/NewsRelease/showNews.cfm?newsId=A3DD97F4-E6FF-619B-72045E83D8430451). The National Wildlife Refuge System has a draft mosquito and mosquito-borne disease management policy (www.fws.gov/policylibrary/E7-20201.html).

The use of integrated vector management, including the effective use of the least toxic pesticides necessary to achieve the desired results, should be included in this option. In addition, there are techniques such as organic landscaping for storm water management that should be evaluated in light of the need to control breeding grounds for certain disease vectors.

The working group would outreach to programs, such as those promoting a green economy, to ensure that the risks of vectorborne diseases do not increase with changes in infrastructure and landscape management.

Estimation of Adaptation Benefits and Costs

Capital intensity: The capital requirements relate to funding for the additional personnel required to meet the demands identified by the working group. There may be some additional capital requirements for specialized trapping equipment related to vector surveillance or for laboratory capacity.

Flexibility: This policy option allows significant flexibility, as it entails the option of using personnel involved in surveillance activities to perform multiple functions or to switch to different surveillance activities if the impacts of climate change differ from projections.

Adaptive capacity: This option provides the state with considerable capacity to adapt to changes as a result of climate change. Both the personnel and laboratory capacity anticipated can perform multiple functions and will allow the state to shift resources in a relatively narrow window.

Documentation of Adaptation Benefits and Costs

Data Sources: For best practices, recommendations from the Council of State and Territorial Epidemiologists (CSTE), as well as the CDC Emerging Infectious Disease program:

<http://www.cdc.gov/ieip/>, and recommendations from the World Health Organization: <http://www.who.int/heli/risks/vectors/vectordirectory/en/index6.html>.

Key Uncertainties: None

Feasibility Issues

The primary feasibility issue relates to the state's ability to recruit and retain the personnel required to carry out these activities.

Improving surveillance and control activities will need to include educational programs so that individuals do not over-spray when vector-borne diseases are identified, as using excessive amounts of insecticides has adverse health and environmental consequences.

Status of Group Approval

Barriers to Consensus