Department of the Environment

Protecting Maryland's Water Supply

Governor's Advisory Committee on the Management and Protection of the State's Water Resources

February 29, 2008

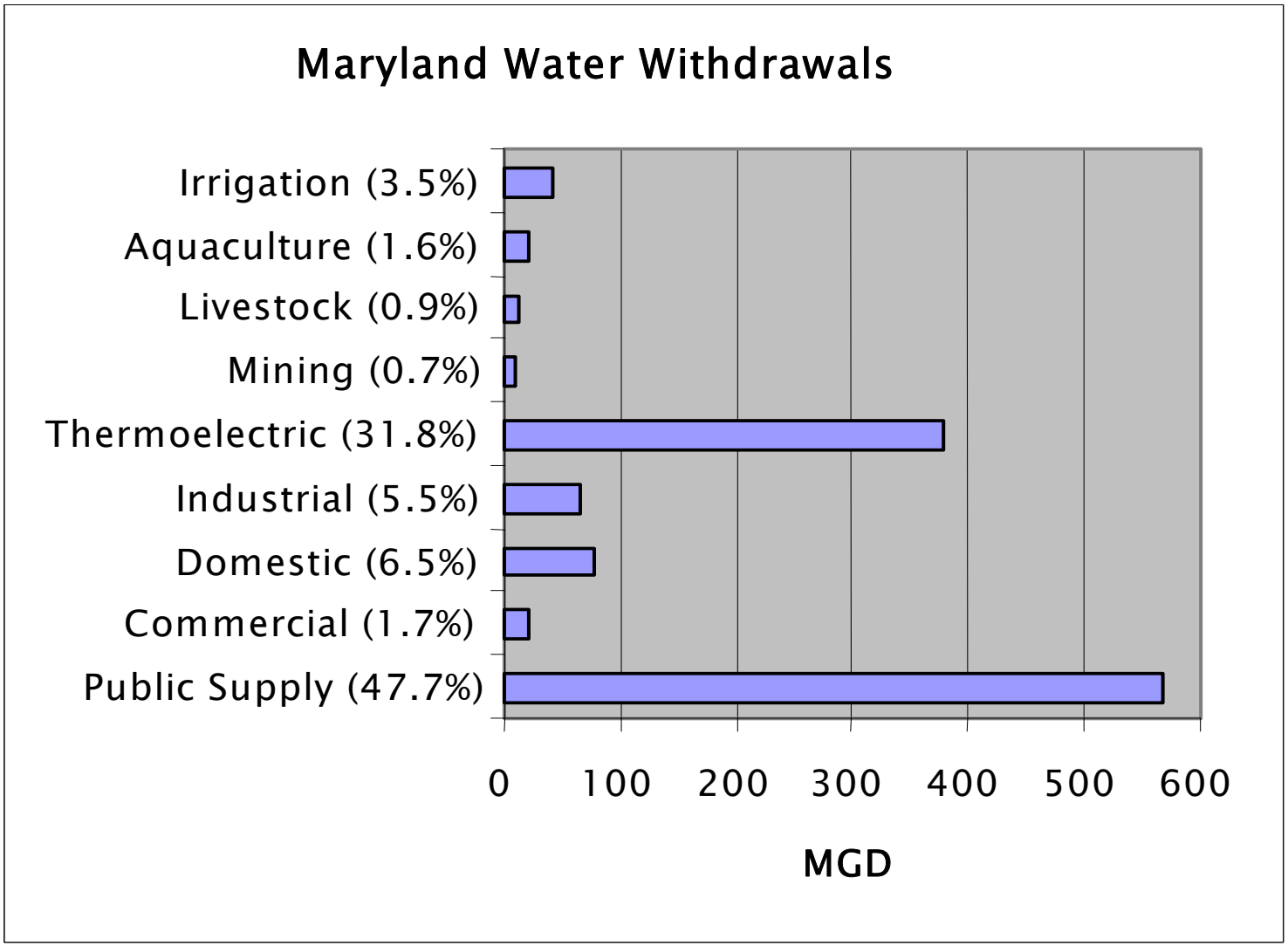
Robert M. Summers, Ph.D.

Deputy Secretary

Maryland Department of the Environment

MDE

Marylanders use almost 1.5 billion gallons of water a day



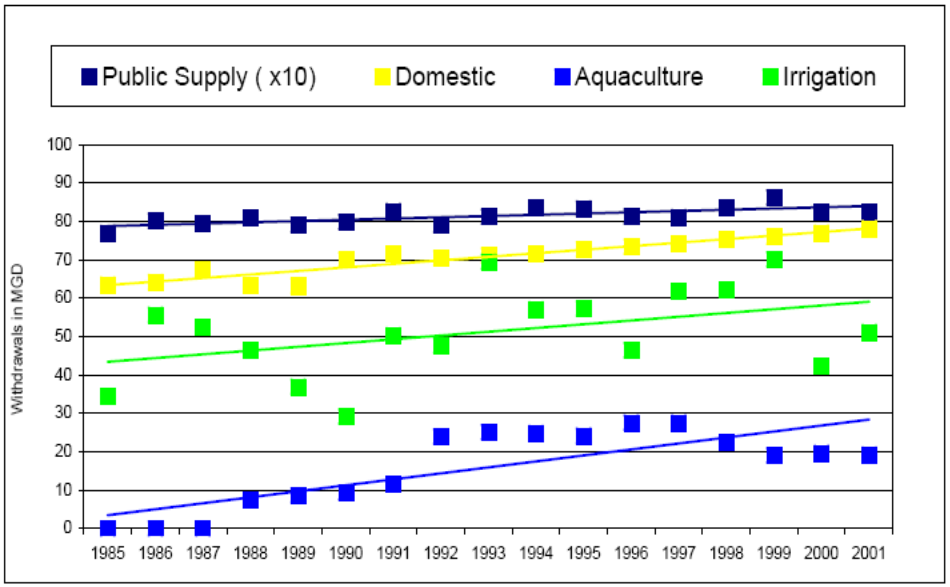


Figure 2–5. Fresh Water Withdrawal Categories that show an increasing trend from the period, 1985-2001.

- Public supply, domestic wells, aquaculture and irrigation uses are increasing.

- Commercial, industrial, thermoelectric and livestock uses have been stable.

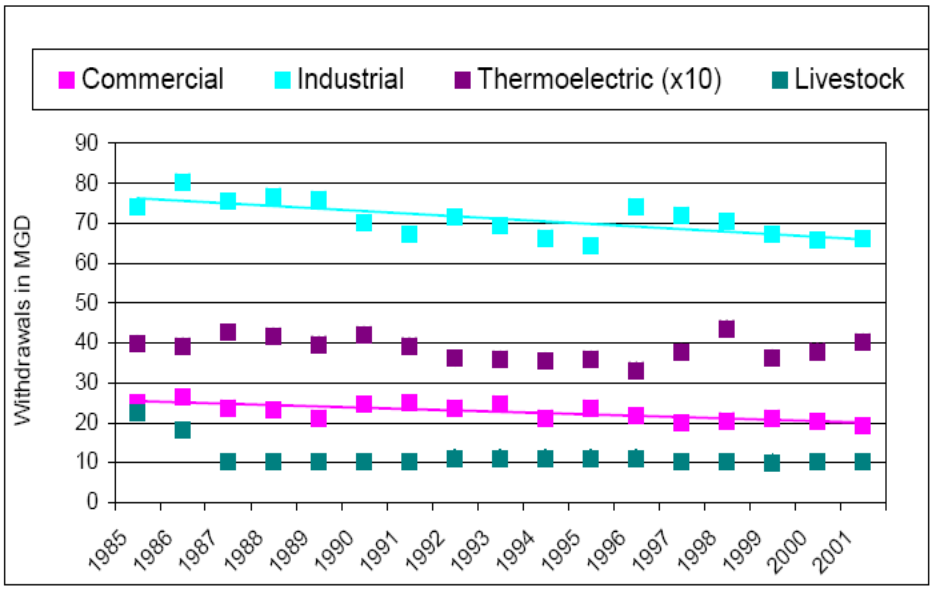


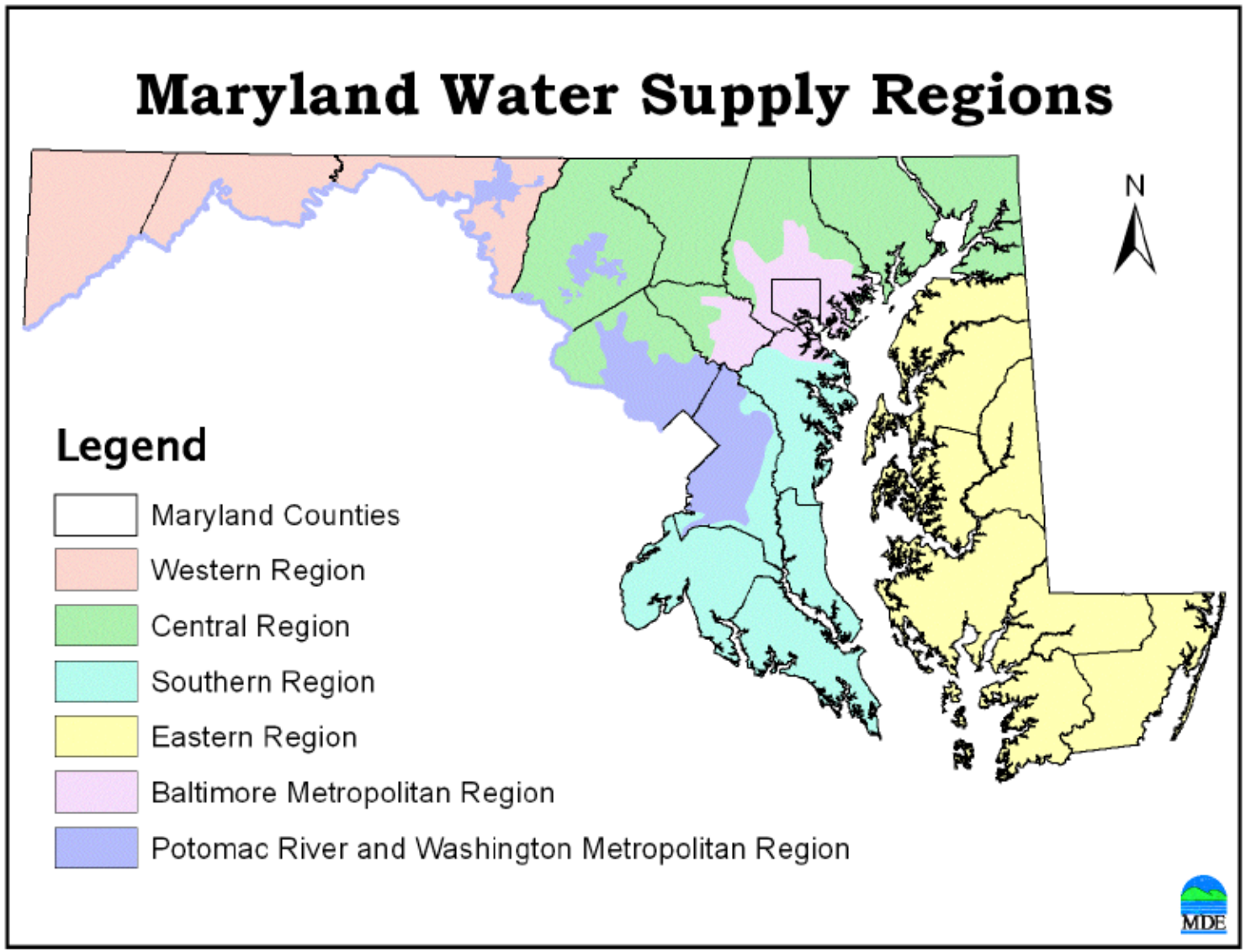
Figure 2–6. Fresh Water Withdrawal Categories that show a decreasing trend or no observable trend for the period 1985-2001.

Public supply, thermoelectric, domestic wells, irrigation and aquaculture water use in Maryland are expected to increase 16% by 2030.

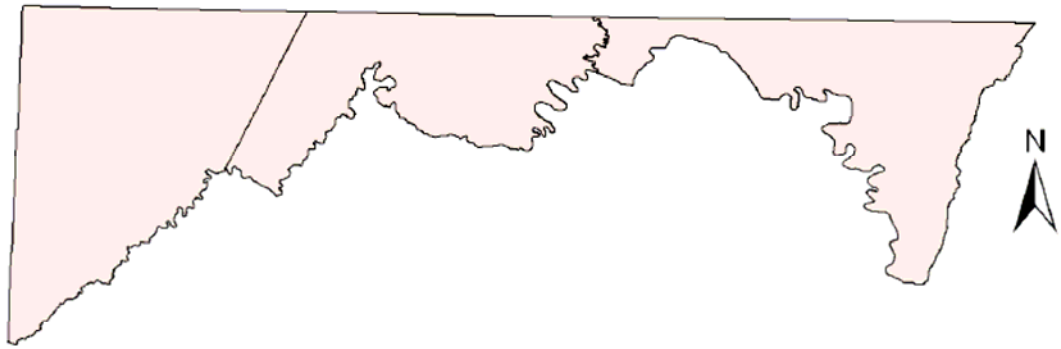
	2000 Water Demand	Projected Water Demand Increase by 2030
Public Supply	824	+ 58
Thermoelectric	379	+ 54
Domestic Self-Supplied	77	+ 17
Industrial	66	*
Irrigation	42	+ 84
Aquaculture	20	+ 20
Commercial	21	*
Livestock	10	*
Mining	8	*
Total	1,447 (mgd)	+ 233 (mgd)

(* Not projected)

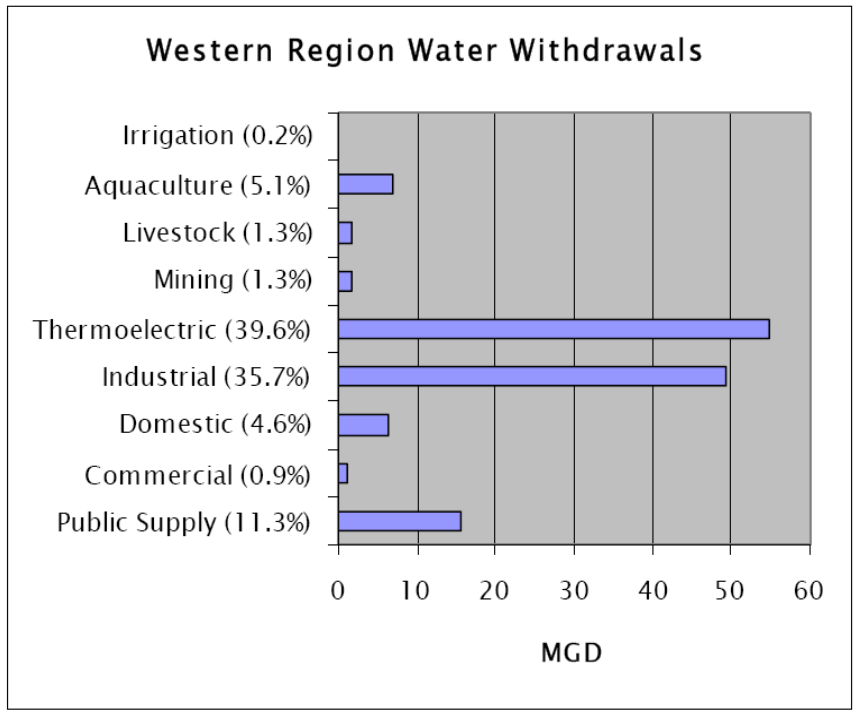
Water resources in every region of the State are under increasing pressure



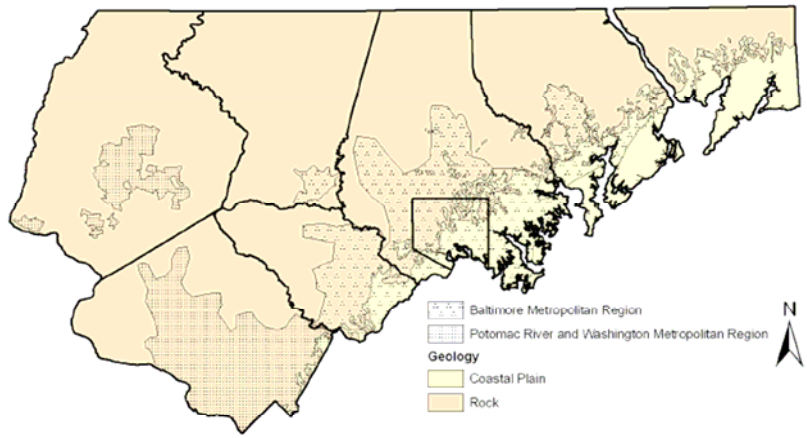
Western Region



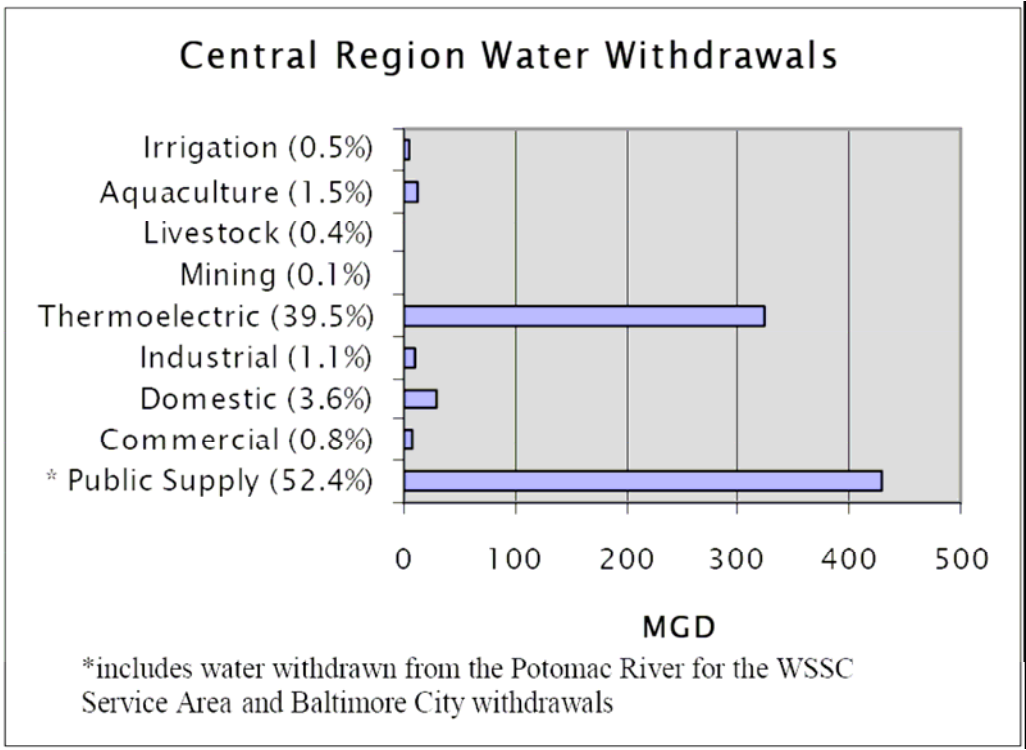
- surface water sources require advanced treatment to prevent disinfection by-product contamination
- fractured rock aquifers cannot support planned growth in some cases
- groundwater in karst areas is vulnerable to surface water contamination
- communities are looking to Potomac for additional water – increased competition with other states in the watershed



Central Region

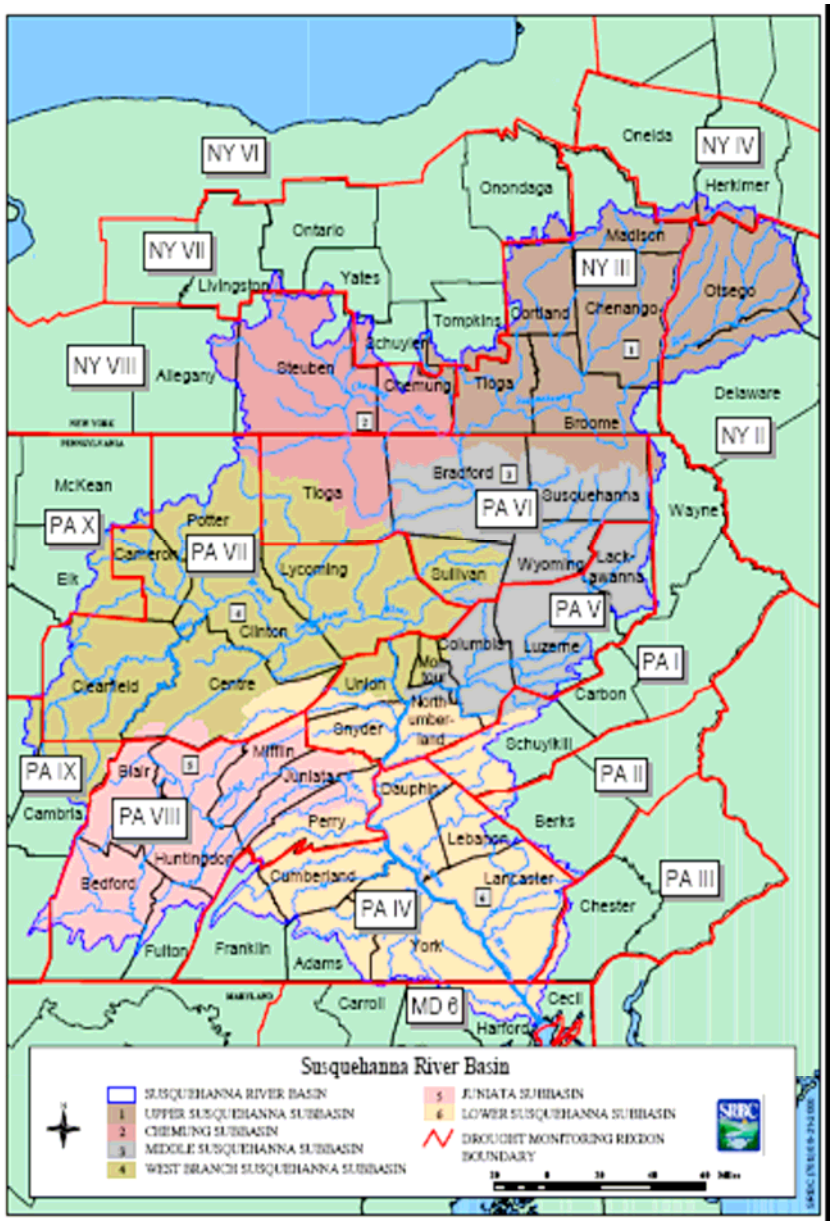


- fractured rock and karst groundwater issues similar to Western Region
- sources increasingly susceptible to contamination
- groundwater sources subject to water balance use restrictions



- surface water sources subject to flow-by restrictions to protect stream ecosystem
- reservoir quality impacted by runoff, road salt, etc.
- increased demand on shared groundwater system between MD and DE
- Susquehanna River sources under increasing demand

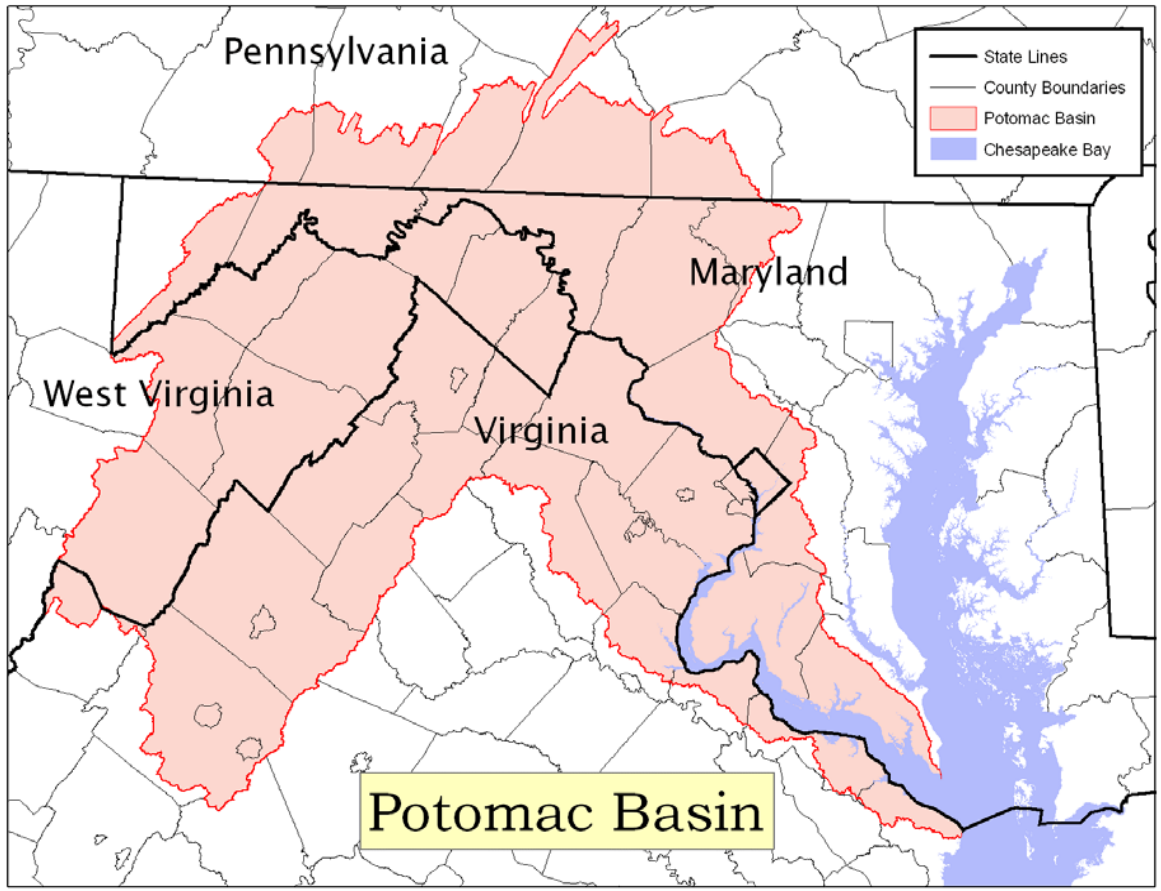
Susquehanna River



- major source of water for Harford and Cecil County and municipalities
- critical backup supply for Baltimore
- major freshwater source for Chesapeake Bay ecosystem
- shared resource with New York and Pennsylvania, which are both placing increasing demands on river
- use regulated by the Susquehanna River Basin Commission

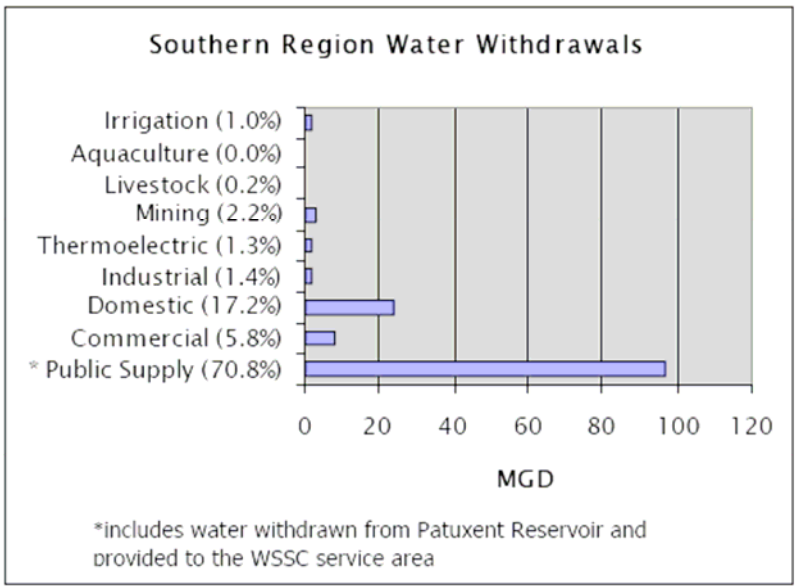
Potomac River and Washington Metro Area

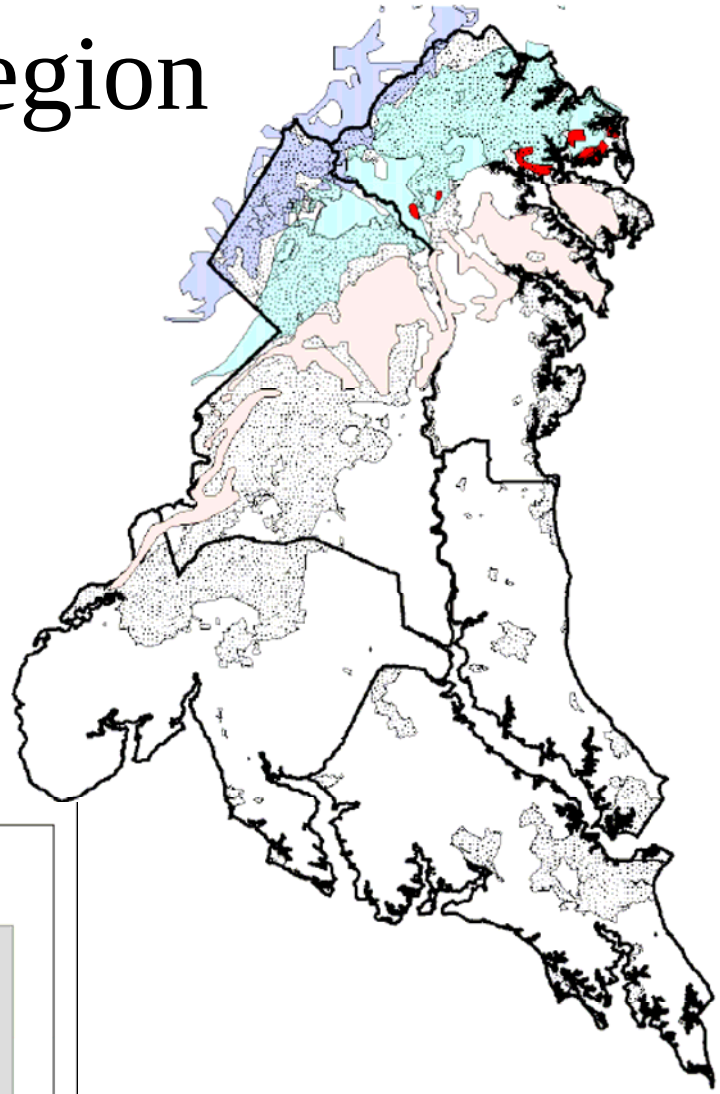
- 2003 Supreme Court decision requires new inter-state regulatory cooperation
- projected demand in 2030 will exceed drought of record supply
- conservation and/or planning for new sources and/or storage needed
- improved source water protection and security needed

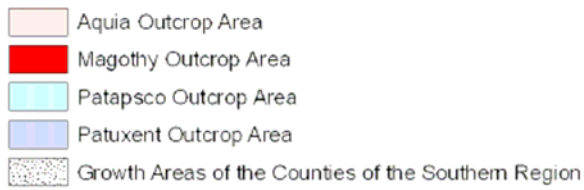


Southern Region

- water levels in confined aquifers are declining at a significant rate
- increased impervious area and stormwater impacts in outcrop areas



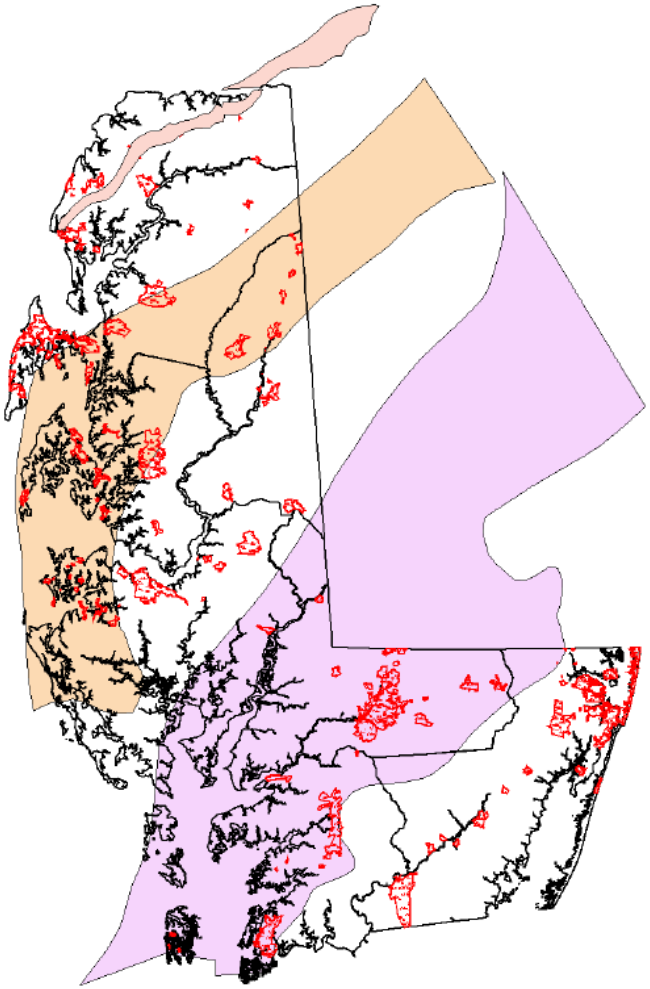




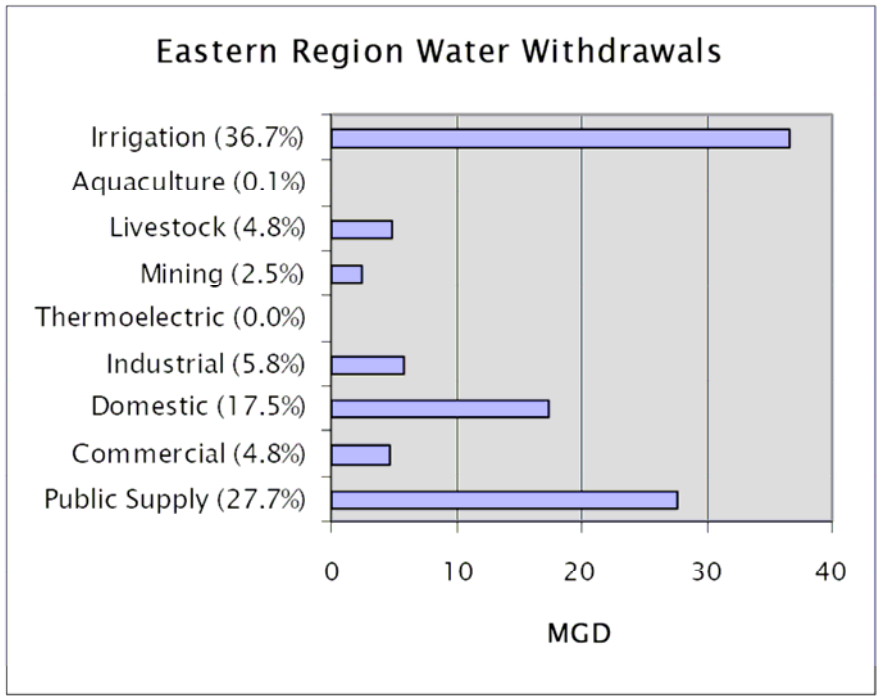
- naturally-occurring arsenic at elevated levels is found in Calvert, Charles, and St. Mary's Counties.
- elevated radionuclide levels from natural sources have been found in northern Anne Arundel County and some wells in Charles County

Eastern Region

- influence of large agricultural and municipal wells on others' use
- aquifer levels declining
- saltwater intrusion
- nitrates from agriculture and septic systems



Aquia Outcrop Area in Maryland and Delaware
Subcrop of the Upper Chesapeak Aquifers in Maryland and Delaware
Subcrop of the Lower Chesapeak Aquifers in Maryland and Delaware
Growth Areas in the Eastern Region



- In 2002, record low water levels were observed in many areas of Maryland

- 72 legislators signed a letter to Governor Glendening requesting a Task Force be assembled to study the issues.

In response to this record drought, in 2003, Governor Ehrlich appointed the *Advisory Committee on the Management and Protection of the State's Water Resources* to evaluate the ability of the State to meet its future water needs.

The Governor appointed Dr. M. Gordon “Reds” Wolman of the Johns Hopkins University to chair the Advisory Committee.

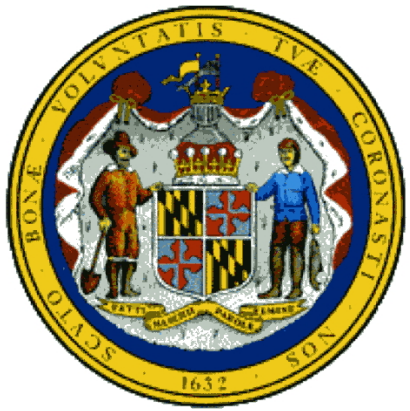
The Advisory Committee issued its final report in May of 2004,

Advisory Committee on the Management and Protection of the State's Water Resources

Final Report

May 28, 2004

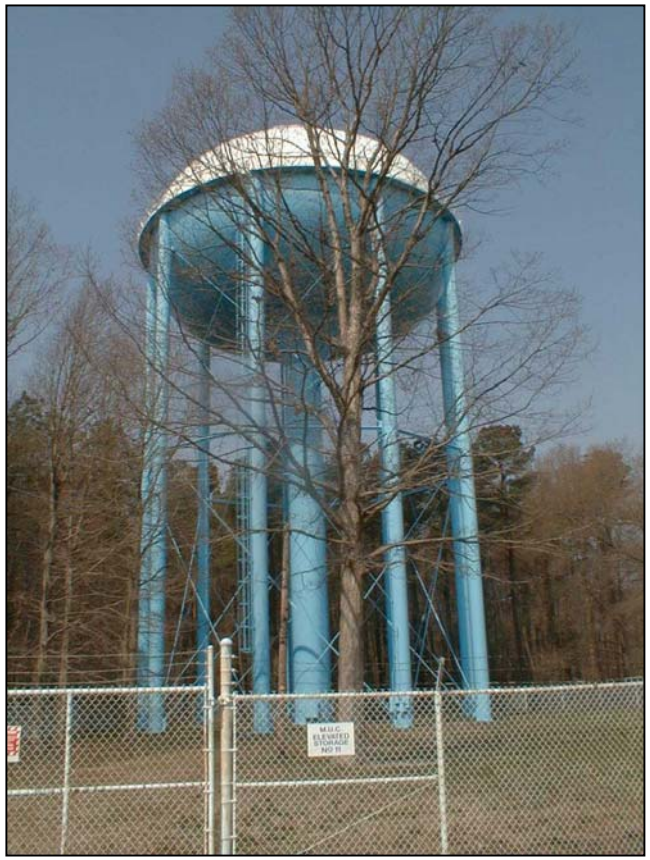
M. Gordon Wolman, Chairman



ROBERT L. EHRLICH, JR.
GOVERNOR

MICHAEL S. STEELE
LIEUTENANT GOVERNOR

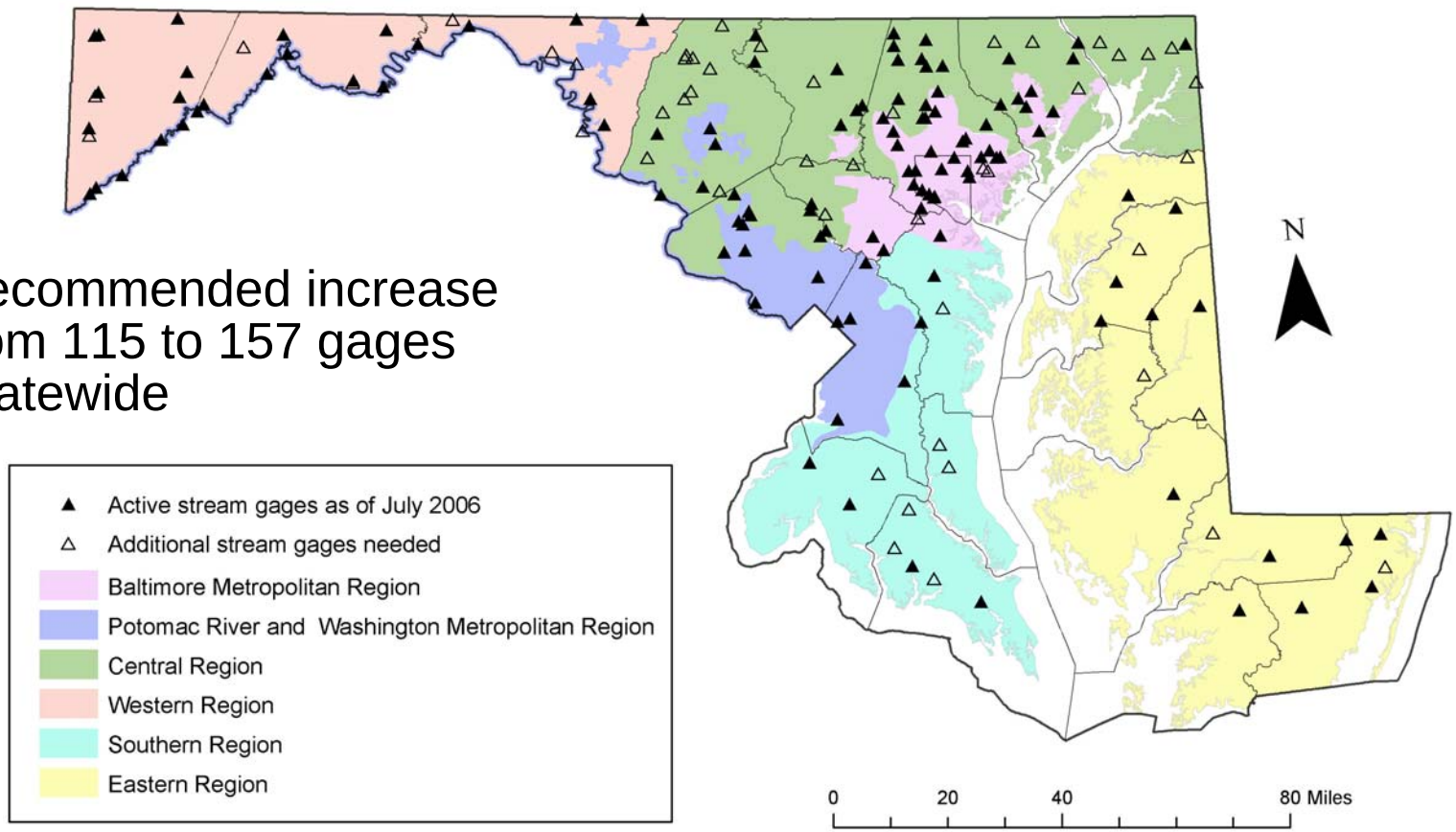
The 2004 Advisory Committee Recommendations:



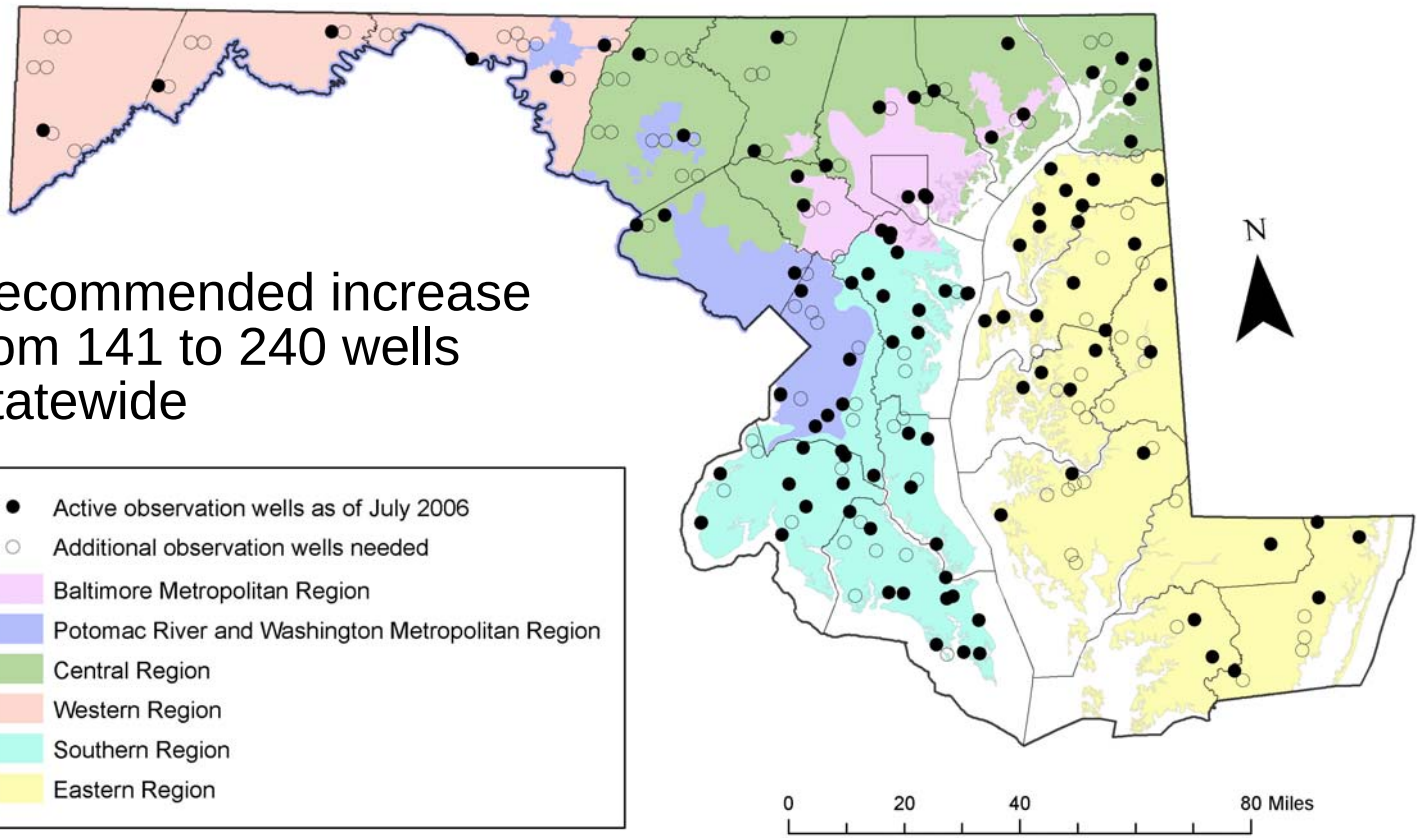
- Conduct water supply evaluations of Maryland's watersheds and aquifers.
- Restore funding for observation wells and stream gages.
- Improve coordination between Maryland and Virginia regarding water allocations from the Potomac River.
- Support water and sewer planning at the State and local government levels.
- Implement an educational program to inform the public about water supply issues and the importance of conservation.
- Appoint a new Committee to oversee implementation of these recommendations.

Maryland Stream Gage Network

Recommended increase from 115 to 157 gages Statewide



Maryland Observation Well Network



Recommended increase from 141 to 240 wells Statewide

- Active observation wells as of July 2006
- Additional observation wells needed
- Baltimore Metropolitan Region
- Potomac River and Washington Metropolitan Region
- Central Region
- Western Region
- Southern Region
- Eastern Region

Regional Supply and Demand Analysis

✓ **The Governor's Advisory Committee on the Management and Protection of the State's Water Resources identified development of regional supply and demand studies for water supply as a top priority need.**

✓ **Regional analyses are needed for Western Maryland, the Potomac, Central Maryland, Southern Maryland and the Eastern Shore**

Maryland Coastal Plain Aquifer System Study

- Coastal Plain Aquifer Study was initiated in 2005.
- Funding has been identified for 2008 implementation of the Coastal Plain Aquifer study.
- Additional $11.7 million is needed

2006 Advisory Committee Interim Recommendations

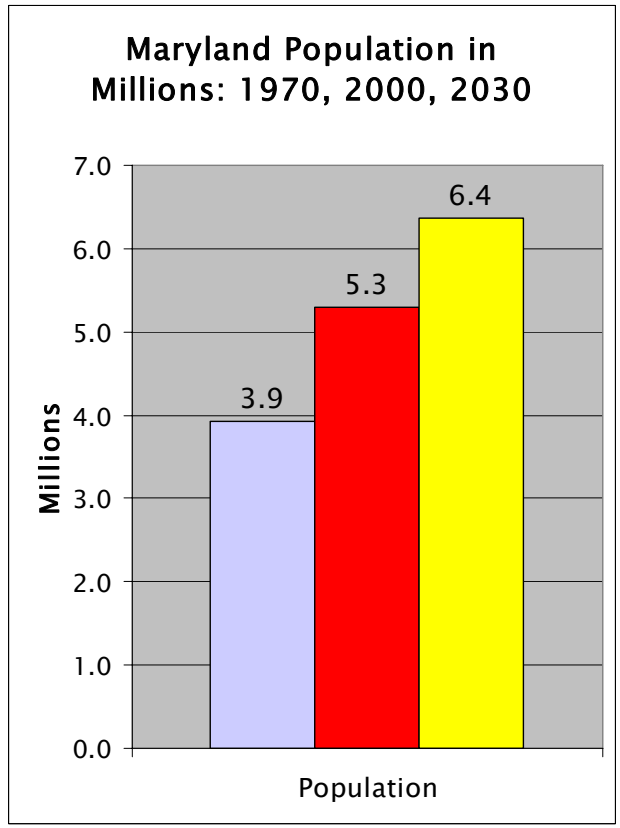
- Comprehensive State Water Resources Management Plan is needed
  - Complete a comprehensive evaluation of the State's watersheds and aquifers
  - Identify new sources of water supply and storage
  - Support local water supply planning
    - House Bill 1141
  - Develop regional planning initiatives
  - Develop improved methods to protect aquatic ecosystem to restore and protect existing supply

Identify new sources of water supply

- Enhanced water conservation
- Expanded wastewater reuse
- New sources
- Additional storage

House Bill 1141 – Land Use – Local Government Planning

- ✓ **Maryland's population is projected to grow by 1.1 million over the next 25 years**
- ✓ **Many communities are already struggling to find adequate supplies of water to meet demand**
- ✓ **Significant pollutant reductions and loading caps are needed to meet water quality standards in many of our waterways**
- ✓ **Development pressure is increasing on wetlands and waterways**



House Bill 1141 – Land Use – Local Government Planning

✓ **Requires expanded Sensitive Areas and new Water Resources elements be included in local government comprehensive plans**

✓**Requires MDE and DNR review of expanded sensitive area element, including: wetlands, agricultural and forest resource protection or conservation areas**

✓ **Requires MDE review of the water resources element of local plans to determine consistency with the general water resources program required by Environment Article § 5-203**

MD's General Water Resources Program

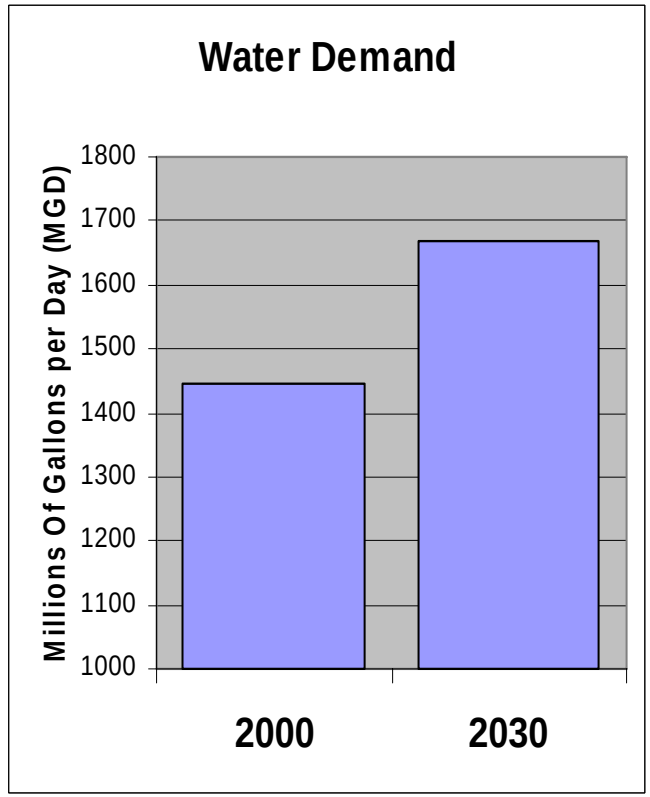
- ✓ **Water Quality Program**
  - **Water quality standards and TMDLs**
  - **Chesapeake Bay Tributary Strategies**
  - **Wastewater discharge permits**
  - **Erosion and sediment control**
  - **Stormwater management permits**
- ✓ **Wetlands and Waterways Program**
- ✓ **Compliance Program**
- ✓ **Water Supply Program**
- ✓ **Water Infrastructure Program**
  - **Water and Sewer Planning**
  - **Water and wastewater grants and loans**
  - **Bay Restoration Fund**
  - **Construction permits**

Local comprehensive plans and the State's general water resources program

✓ **Water supplies in Maryland are facing increasing demand from a growing population**

- **By 2030, the demand for water supply is expected to increase from 1,447 million gallons per day (mgd) to 1,670 mgd an increase of 223 mgd**

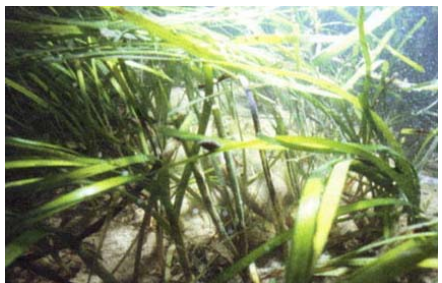
- **Southern Maryland has the largest projected growth rate (30%), followed closely by the Upper Eastern Shore (23%).**



Local comprehensive plans and water resources

✓ **Many of Maryland's waterways are impaired and pollutant loadings must be reduced to acceptable levels and capped to prevent water quality standards violations**

- **Chesapeake Bay Nutrient loading caps are now mandatory for all significant wastewater facilities in the watershed.**
- **Other smaller sources need to achieve their loading caps as well if we are going to achieve water quality standards.**
- **Local growth plans must direct growth to areas where sufficient wastewater capacity exists to ensure that water quality goals can be achieved.**



Local comprehensive plans and water resources

✓ **Planned densities and open space must include accommodation of stormwater management needs**

- **Environmentally sensitive design principles must be incorporated in every new development and redevelopment project**
- **Stormwater utilities should be incorporated in local ordinances to ensure continued maintenance of stormwater controls.**

Non-Rooftop Disconnection

Local comprehensive plans and water resources

✓ **Maryland's wetland resources are under increasing development pressure as much of the upland areas have already been developed and more people move closer to the water.**

- **Local comprehensive plans must incorporate wetlands and floodplain protection by ensuring that sufficient upland areas are available to support the densities envisioned in the plan.**

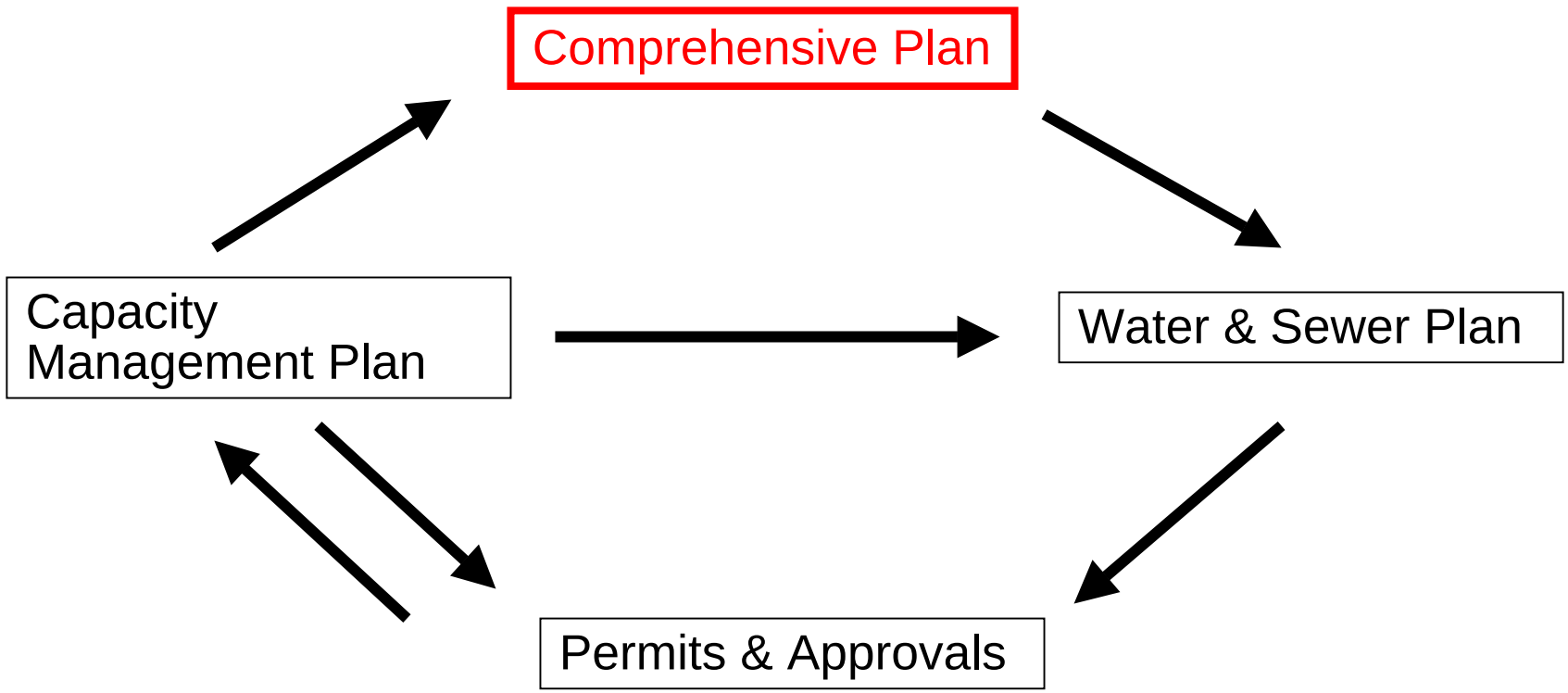
Local comprehensive plans and the State's general water resources program

✓ **Comprehensive plans are a local government responsibility**
- **State has responsibility to provide technical assistance, review and comment**

✓ **The general water resources program and environmental permits are a State responsibility**
- **Local governments have delegated responsibilities under State law and may add local requirements in some cases**

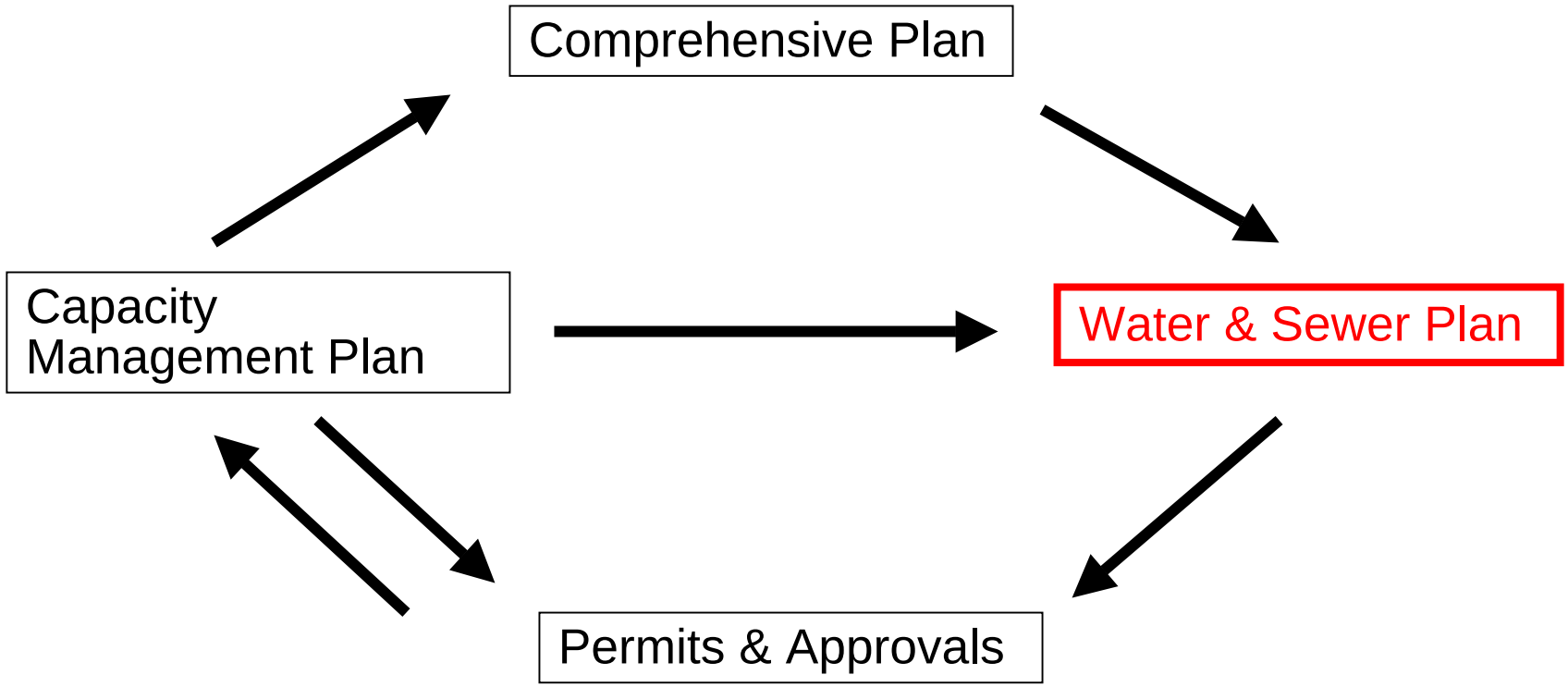
✓ **Neither State nor local government can do it alone**
- **✓We must work cooperatively together within our respective roles.**

Water Resources Planning Cycle



Water Appropriation	NPDES Discharge
Facility Construction	Development Plat
Wetlands and Waterways	Building Permit

Water Resources Planning Cycle



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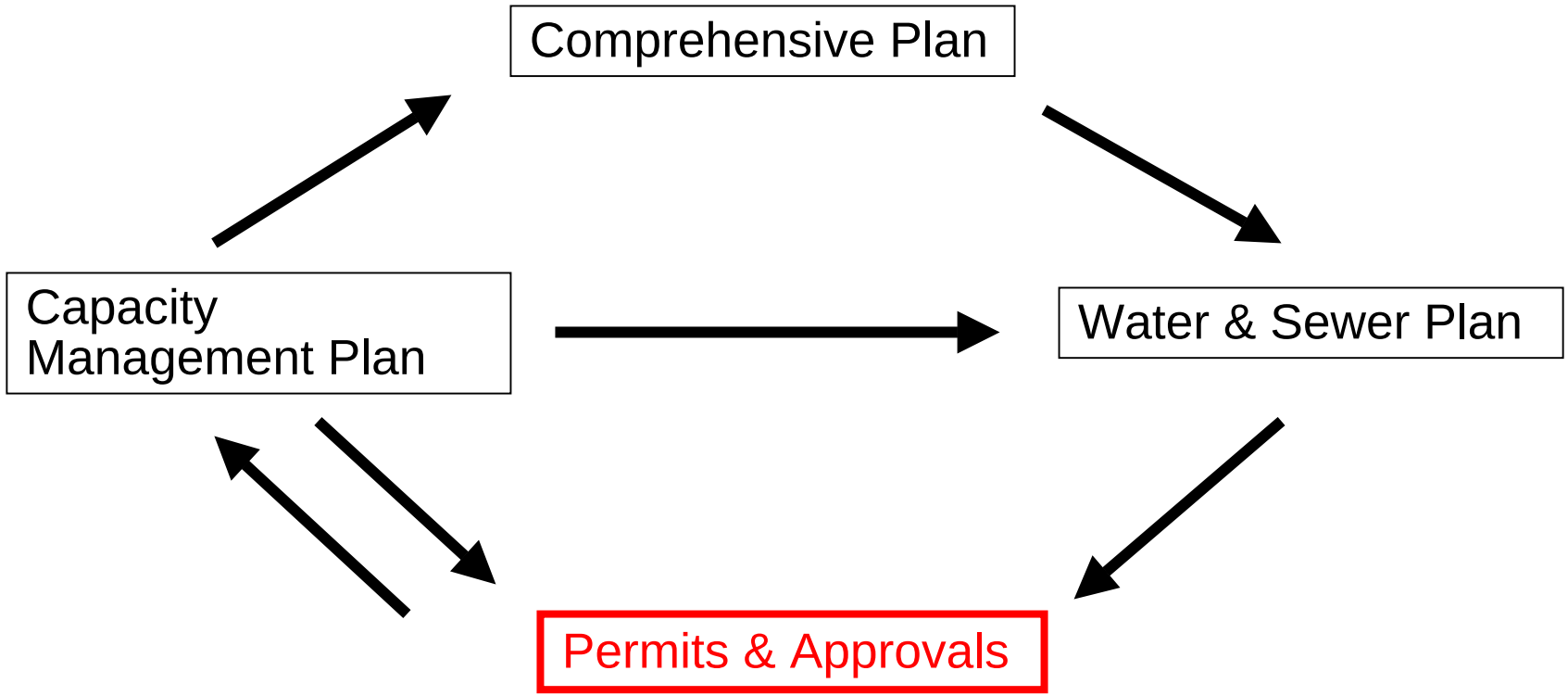
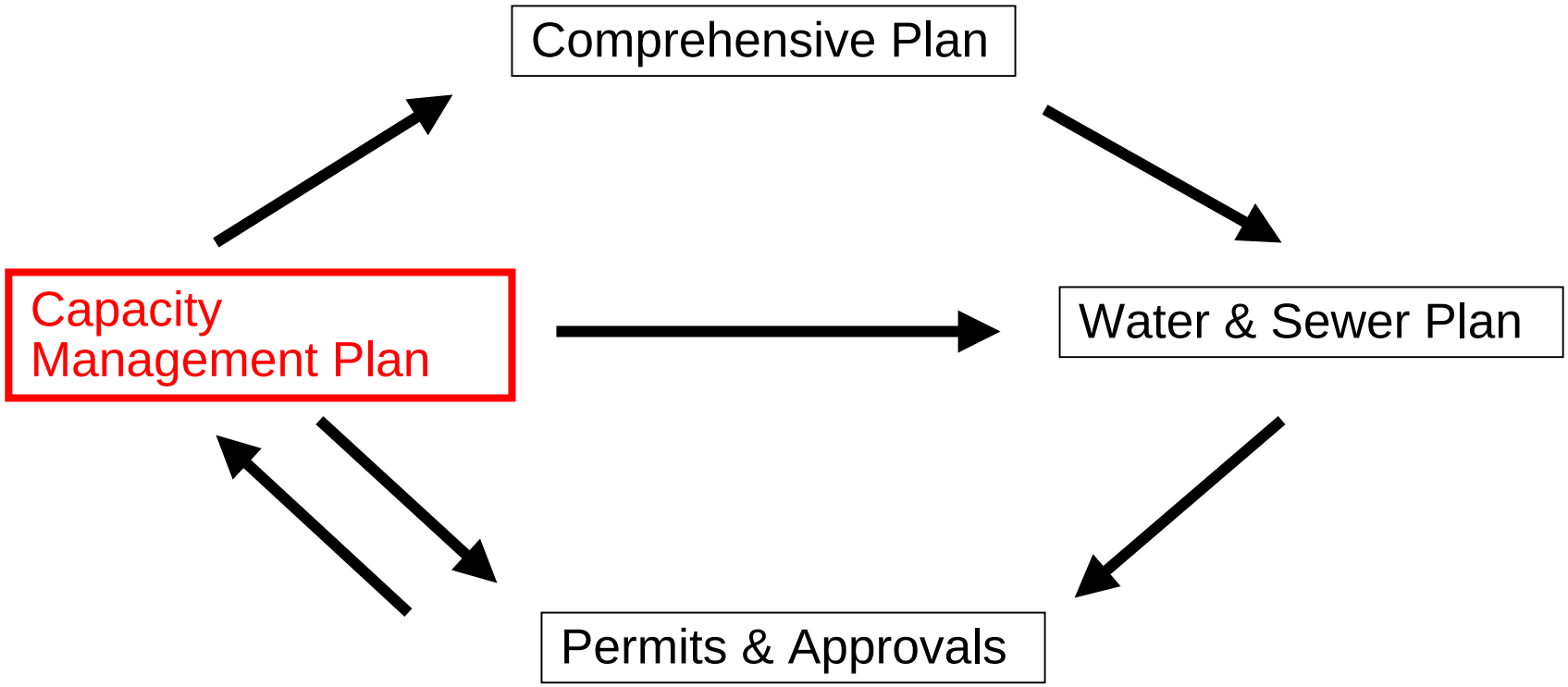
Water Resources Planning Cycle



Water Resources Planning Cycle



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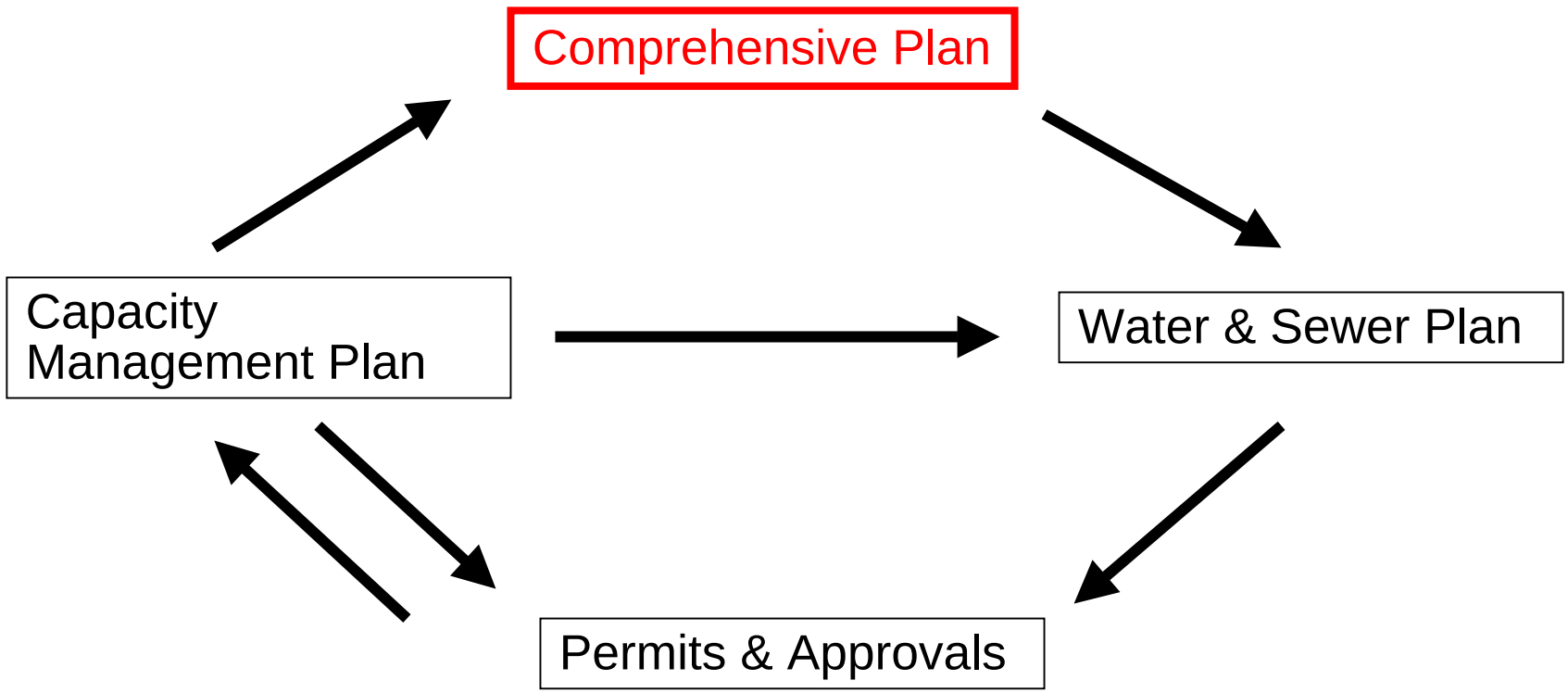

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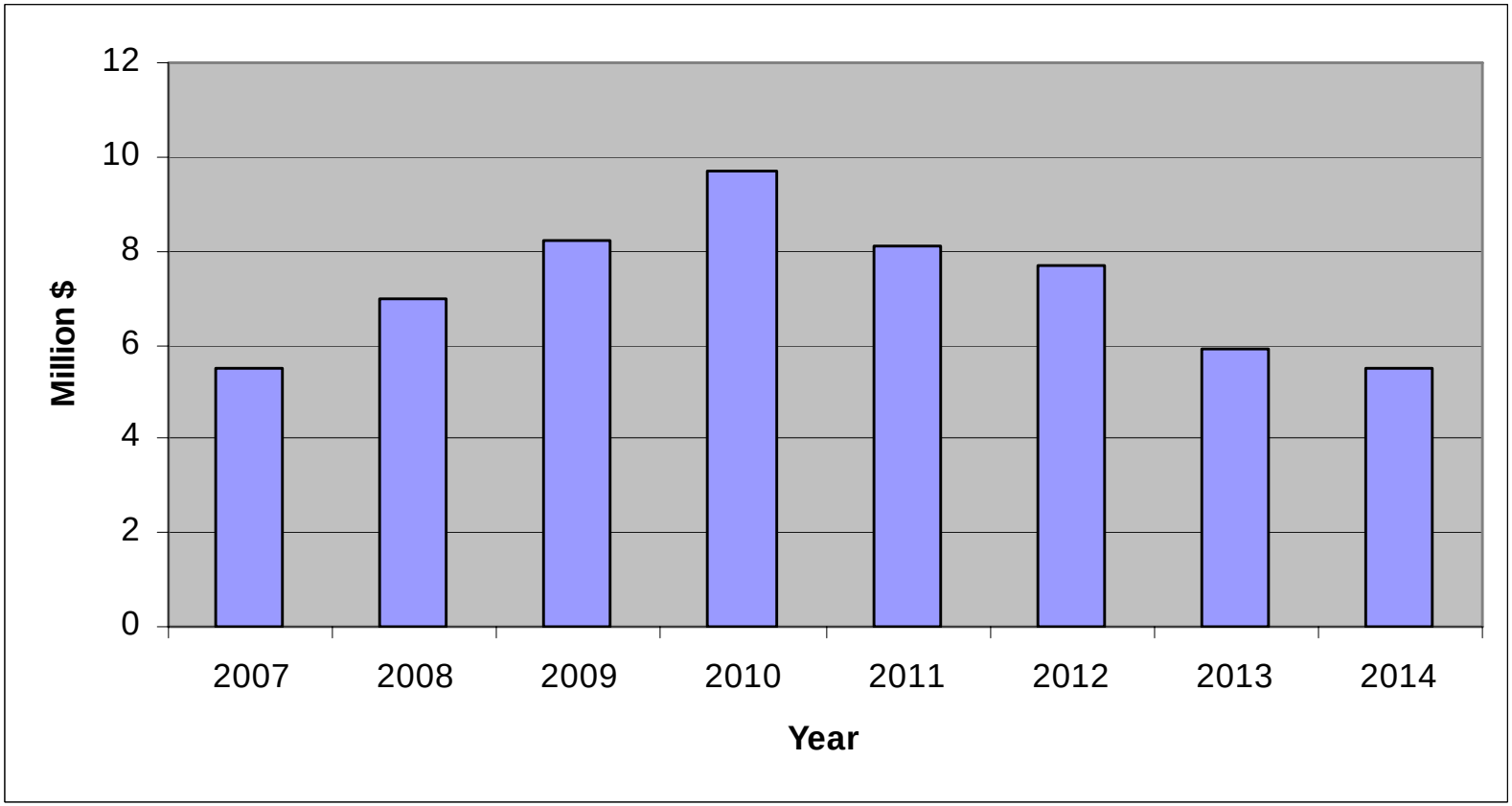
Funding required to implement Committee's recommendations



Average $7.2 million per year

2006 Interim Recommendations

- Identify funding

The advisory Committee has appointed a Funding Subcommittee to investigate potential funding sources and recommend ways to ensure that funding is raised in a sustainable and equitable manner.

Both Advisory Committee Reports are available on MDE's website at:

http://www.mde.state.md.us/Programs/WaterPrograms/Water_Supply/WR_Advisory_Com_II.asp