Building Strong Collaborative Relationships for a Sustainable Water Resources Future:

STATE OF MISSISSIPPI

SUMMARY OF STATE WATER PLANNING

U.S. Army Corps of Engineers
Civil Works Directorate
441 G Street NW
Washington, DC 20314-1000

December 2009

The findings contained in this report are based on the information collected from the literature search and interviews for this initiative and should not be construed as an official Department of the Army position, policy or decision unless so designated by other official documentation.

STATE OF MISSISSIPPI

1. STATE/REGIONAL WATER PLANNING STATUS

Mississippi does not have a single, comprehensive statewide water resource planning document, however the state provides guidance and staff to regional and local watershed collaborators to assist in developing basin plans. Current planning for water resources in the state is heavily focused on the reconstruction of the Gulf Coast counties' water infrastructure that was significantly damaged by Hurricane Katrina in 2005.

The Mississippi Department of Environmental Quality (MDEQ) has organized the Basin Management Approach program to accomplish water quality planning initiatives at the watershed level. The plans are developed by watershed groups, not the MDEQ, and each watershed in the state has a state employee designated as basin coordinator. The state is divided in to nine basins (Figure 1), all of which are at different stages in the development of their watershed plans. The plans aim to: assess water quality, determine causes and sources of problems, and prioritize watersheds for water quality restoration and protection activities (Source: [3]).

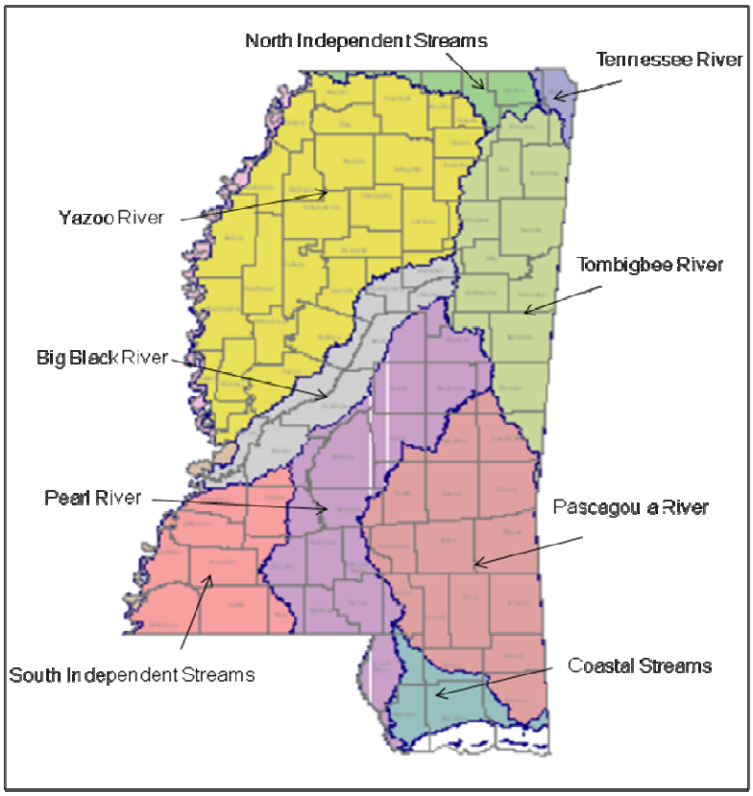

Figure 1. Mississippi Basin Management Approach Watersheds (Source: [3]

The MDEQ has also written that a future responsibility is to develop a "statewide water plan to address the proper management and protection of Mississippi's valuable water resources" (Source: [2]. The state is currently working on developing a statewide water quantity planning program. This effort focuses on using multi-county water management districts to develop plans at the local level, which will then be compiled into regional planning documents and ultimately form a statewide water quantity plan.

The most significant recent water planning effort in Mississippi has been in response to the destruction from Hurricane Katrina in 2005. The structural and economic effects of damage done by the storm necessitated an organized planning effort to rebuild the infrastructure of the region. In 2006 the state formed the Governor's Commission on Recovery, Rebuilding and Renewal and passed a state senate bill which allowed for the creation of county utility authorities – the framework for which water infrastructure is to be redeveloped in the Gulf Coast region (Source: [1]). A large amount of federal funding was appropriated to Mississippi to assist in the post-Katrina rebuilding efforts, and a portion of that funding was designated to water, wastewater, and stormwater infrastructure improvements in the six-county Gulf Region (shown in Figure 2). A plan was developed to establish a systematic approach to carrying out the rebuilding and development, called the Mississippi Gulf Region Water and Wastewater Plan (2006). It was prepared under the authority of a contract between the Mississippi Department of Environmental Quality (MDEQ) and a group of private consulting firms called the Mississippi Engineering Group, Inc.

Figure 2. Mississippi Gulf Region (Source: [1])

The Plan identifies the most critical needs within the region and prioritizes the needs for allocation of funding. The overall focus of the plan is on the region as a whole, with the particular emphasis made on developing an "infrastructure backbone" at the regional level rather than rehabilitating the many local systems. The components of the Plan include an inventory of the pre-Katrina conditions, projections for short- and long-term population shifts, identification of infrastructure improvements, and an implementation plan to prioritize funding allocation (Source: [1]).

2. RESPONSIBLE STATE AGENCIES/REGIONAL ENTITIES

The Mississippi Department of Environmental Quality (MDEQ) Office of Land and Water Resources is the state agency responsible for water planning activities, including the Gulf Coast Water and Wastewater Plan and the Basin Management Approach.

The assigned responsibilities of the Office include (Source: [1]):

- Issuing permits for groundwater withdrawal and surface water diversion and impoundment in the state
- Licensing and regulating water well contractors/drillers
- Conducting technical investigations of the water resources in the state
- Monitoring water use
- Maintaining water-related information in computer databases
- Publishing various reports and maps
- Monitoring dam safety in the state
- Developing regional groundwater-flow models
- Measuring water-level changes in the state's major aquifers
- Monitoring stream flows throughout Mississippi
- Providing technical assistance to the public, various stakeholders, and other governmental entities on various water-related issues.
- Future responsibilities include the development of a statewide water plan to address the proper management and protection of Mississippi's valuable water resources.

The contact information for the MDEQ Office of Land and Water Resources is as follows:

Sam Mabry
Director of Office and Land and Water Resources
P. O. Box 2309
Jackson, MS 39225

3. WATER MANAGEMENT VISION AND GOALS

The stated mission of the MDEQ Office of Land and Water Resources is as follows: “The Office of Land and Water Resources (OLWR) is charged with conserving, managing, and protecting the water resources of Mississippi. The agency regulates water quantity issues affecting the beneficial use of these resources in the best interest and welfare of the citizens of the state (Source: [2]).”

4. SCOPE OF WATER RESOURCES PLANNING AND MANAGEMENT

Basin Management Approach

The Basin Management Approach is a program run by MDEQ that aims to assess and characterize the water quality of the 9 watersheds that comprise the state of Mississippi, divided into 4 groups. Each group has a basin team of state and federal agencies and local watershed groups. MDEQ provides a basin coordinator who acts as a point of contact between local watershed groups and the state and

federal governments. MDEQ coordinates meetings and organizes stakeholders into basin teams. The state has developed tools for the basin teams to use to prioritize their issues and reach consensus, but the state does not carry out these planning steps – the local stakeholders do. MDEQ then works with the basin teams to find necessary resources to implement the plan objectives.

The state has tied this program in with its Clean Water Act regulatory requirements including the Section 303(d) list of impaired waters, the Section 305(b) water quality assessment, and total maximum daily load (TMDL) programs. The table below shows the components and current status of the statewide Basin Management Approach program, based on what is available on the MDEQ website. Several basins have listed that a Management Plan has been completed, but there are none available on the website.

Table 1. Status of Watershed Planning Efforts through the Basin Management Approach

	Mississippi Watershed								
Component of Basin Management Approach	NORTH INDEPENDENT STREAMS	YAZOO RIVER	BIG BLACK RIVER	PEARL RIVER	SOUTH INDEPENDENT STREAMS	TENNESSEE RIVER	TOMBIGBEE RIVER	PASCAGOULA RIVER	COASTAL STREAMS
UPDATED SCHEDULE	N	Y	N	Y	N	N	N	Y	Y
PARTNERS	N	Y	Y	Y	Y	Y	Y	Y	Y
STAKEHOLDERS	N	N	N	N	N	N	N	N	N
CONDITIONS/STATUS REPORT	N	Y	Y	Y	Y	N	Y	Y	?
CITIZEN'S GUIDE	N	N	Y	Y	N	Y	Y	N	N
DATA PLAN	N	Y	Y	?	N	N	Y	Y	N
MANAGEMENT PLAN	N	?	?	?	?	N	N	?	?
APPROVED TMDL	Y	Y	Y	Y	Y	Y	Y	Y	Y
WATER QUALITY ASSESSMENT	Y	Y	Y	Y	Y	N	N	Y	Y
WATER QUALITY IMPAIRMENT	Y	Y	Y	Y	Y	Y	N	Y	Y
WATER QUALITY STANDARDS	Y	Y	Y	Y	Y	Y	Y	Y	Y
STATUS OF PLANNING*	UNKNOWN	2nd cycle	UNKNOWN	2nd cycle	UNKNOWN	UNKNOWN	UNKNOWN	1st cycle	1st cycle

SOURCE: MDEQ Surface Water Division Website
? = referred to in basin website, but not available
*status based on information provided in updated schedule, if available

Mississippi Gulf Region Water and Wastewater Plan

The Mississippi Gulf Region Water and Wastewater Plan (the Plan) was developed by MDEQ under contract with a group of private engineering firms comprising the Mississippi Engineering Group, Inc. The need for planning in this area of the state originated from the devastation of infrastructure by Hurricane Katrina in August 2005. The Plan's objectives were "to identify the most critical water, wastewater, and stormwater infrastructure needs within the Gulf Region and to prioritize those needs within the framework of an implementation plan for allocation of the funds designated by [the Governor of Mississippi] (Source: [1])." The focus of the Plan was to create an infrastructure "backbone", or a reliable and resilient regional system, upon which local systems could later be developed. The major elements of the approach included:

- Detailed inventory and assessment of pre-Katrina infrastructure conditions on a community-by-community basis

- Analyses of pre- and post-storm demographic data and other conditions relevant to growth and development, in order to arrive at projections of short and long-term shifts in population.
- Identification of water, wastewater, and stormwater infrastructure improvements to meet the short- and long-term needs within the Gulf Region.
- Development of an implementation plan to address priority allocation of the funding designated for infrastructure improvements within the Gulf Region.

The water infrastructure of the Gulf Region was very localized with 185 different drinking water service providers, 481 permitted wastewater dischargers, and 85,000 individual on-site sewage systems existing in the six counties with a pre-Katrina population of 457,575 (1). An important goal of the Plan was to identify feasible alternatives for consolidating multiple facilities into more regionalized systems. The Plan did not originally include options for rehabilitating the local systems that were damaged by the storm, some of which were being addressed with funding from FEMA (some projects of this nature were added as supplemental programs based on stakeholder input).

The Plan indentified over 300 projects to address the water, wastewater and stormwater infrastructure needs throughout the Gulf Region, and criteria were developed for evaluating the relative merits of individual needs and alternatives for meeting those needs (Source: [1]). Projects were categorized as "near-term" or "long-term" improvements. Near-term projects are to be completed by 2010; long-term projects are to be completed by 2025 or beyond. "Near-term projects were considered to be those critical to regional recovery, with high levels of stakeholder support, limited permitting requirements, straightforward implementation, and high potential for shared funding" (Source: [1]). The following is a list of examples from the projects that were included in the Plan:

- Lucedale WWTF and Transmission System Improvements – George County: Expand existing transmission system along Hwy 98 and Hwy 63 and WWTF improvements
- Eastern Hancock Regional Water System – Hancock County: Water supply, storage, and transmission to serve Bay, Louis, and Waveland Streets
- Cypress Creek Stormwater Drainage Improvements – Jackson County: Drainage improvements to reduce flooding of properties along Hwy 609/Tucker Road and Cook Road during periods of heavy rainfall (Source: [2]).

Coincident with the writing of the Plan was the passing of the Mississippi Gulf Coast Region Utility Act, which established county utility authorities and the Gulf Region Utility Board. The role of the county utility authorities is to manage the development of water, wastewater, and stormwater systems on a regional scale. "They have been vested with broad powers to regulate the design, construction, operation, maintenance, and performance standards of affected infrastructure within their service areas. These countywide authorities also can enter into contracts and may set rates and charges for services, issue revenue bonds, and borrow money for the provision of services and facilities" (Source: [1]). The Utility Board exists to facilitate communication amongst the county authorities, share resources, and allow development to occur in a more orderly manner.

The Plan covers the six counties of the Gulf Region: Pearl River, Hancock, Stone, Harrison, George, and Jackson. The regional basins that fall within the Mississippi Gulf Region (depicted in Figure 1) were further divided into 27 sub-basins to facilitate analysis of the localized infrastructure and evaluation of alternatives for improvement. The Plan itself is divided into six sections:

1. Introduction (background, objectives, and description of the plan)
2. Historical water resource management practices on the Mississippi Gulf Coast
3. Infrastructure deficiencies affecting economic development, growth, and quality of life
4. Projected demographic and land use changes
5. Infrastructure improvement alternatives
6. Conclusions and recommendations

The urgency of the situation in the Mississippi Gulf Coast after Hurricane Katrina resulted in an expedited process for developing the Plan. The authors note the limitations of the Plan and recommend that assumptions and projections be reviewed periodically as necessary. The funding and regulatory processes were also expedited in order to assure that high priority development and rehabilitation projects could get underway immediately.

The water infrastructure needs of the region were determined by collecting input from various public agencies, examining existing planning documents, evaluating demographic changes in the region to predict future needs, and quantifying the magnitude of infrastructure necessary to meet those needs. A focus of this process was to not only identify needs of the current population and any deficiencies of the infrastructure as a result of Katrina, but also to assure that the water infrastructure of the region could support population and economic growth. Three options were considered to identify alternative projects to meet each need:

- **No action** – no construction is proposed beyond federally funded disaster relief, thus faculties will have the same capacity as before Katrina.
- **Local alternatives** – there are one or more options to serve customers in the local jurisdiction.
- **Regional alternatives** – moving resources throughout the counties and region could be an option for the most efficient use of resources.

The alternatives, or improvement projects, included treatment and transmission facilities for areas with no central facilities whose existing facilities were inadequate for growth, expansion of existing collection and distribution systems, and creation of water infrastructure in areas where sewer or water service did not exist.

The project alternatives for meeting the needs identified for the region were evaluated based on several criteria: credible costs; time to implement; quality of life/storm resistance; economic development impact; and environmental issues. The rankings for the criteria were summarized in a large matrix of projects in order to evaluate each project's overall effect on the region. The intent was to identify the alternative projects with the greatest potential benefit to the Gulf Coast.

The projects that met the above criteria were further categorized into near-term and long-term projects. The purpose of distinguishing these two types of projects was to ensure that critical and successful projects would be partially funded with the money available to the region through the Community Development Block Grant (CDBG) Disaster Recovery grants. Projects were eligible for near-term implementation if they met a variety of criteria established by the MDEQ and the U.S. Department of Housing and Urban Development (the providers of the CDBG grants). These criteria included considerations for feasibility of implementation, disaster recovery, restoration of infrastructure, and

economic value. Long-term projects were not addressed in detail in the plan, given the urgent nature of this effort, and had been slated for completion by 2025 or beyond.

The near-term projects were further prioritized based on specific criteria in order to provide an adequate an efficient amount of funding for their implementation. These criteria are explained in the following section. The Plan includes information on each of the identified near-term projects, including the name of the program, the county it serves, the service media (i.e. potable water, wastewater), the specific outcome of the program, the estimated cost, and a description of the need that the project addresses.

5. PARTNERSHIPS, STAKEHOLDER, AND PUBLIC INVOLVEMENT

Federal agencies are involved in Mississippi's water planning activities through funding and regulation. The MDEQ Watershed Management Approach is focused on meeting U.S. Environmental Protection Agency Clean Water Act regulations, including the water quality assessments that comprise Section 305(b) reports and Section 303(d) lists of impaired waters. The Mississippi Gulf Region Water and Wastewater Plan was developed to formulate an organized approach to spending funds allocated to the state from the U.S. Department of Housing and Urban Development's Community Development and Block Grant.

MDEQ and its contractors involved stakeholders throughout the process of identifying needs and project alternatives to be included in the Mississippi Gulf Region Water and Wastewater Plan. A communications strategy was developed and implemented as part of the development of the Plan. Stakeholders were initially engaged through mailing lists, which included specific public officials and decision-makers from each county in the Gulf Region. Stakeholders included those most likely to submit water, wastewater, or stormwater projects for inclusion in the Plan, such as:

- Elected officials
- County water authorities
- Public works and engineering staff
- Local engineers and planners
- Water, wastewater and stormwater operators
- Businesses and community groups directly impacted by Katrina
- Interested third parties, such as developers (Source: [1]).

Stakeholders were invited to introductory meetings in each of the six counties after the signing of the Gulf Coast Region Utility Act (which established the county utility authorities and the Gulf Region Utility Board), where presentations were made explaining the source and purpose of the infrastructure funding and the objectives and development process of the Plan (Source: [1]). Additional county meetings were held during the development of the Plan including economic development meetings and public involvement meetings, and smaller "face-to-face" meetings were held to clarify issues and encourage participation. The stakeholder involvement process was evaluated with surveys distributed before and during the meetings. Materials including a newsletter, web site, signage, flyers, presentation template, thank-you notes, letterhead, and handouts were developed to form a consistent outreach effort. During the development and evaluation of project alternatives, the Plan developers solicited stakeholders' needs and ideas, and through the surveys, meetings, letters, and email messages over 300 projects were identified. After the projects were categorized and prioritized, the Plan was distributed for a public comment period. The result of the public comment period was a number of additional

infrastructure needs that were not included in the Plan, but were recognized as important to achieving the objectives of the Plan. Additional funding was made available for these projects and a section of "Supplemental Programs" was added to the Plan. These programs include:

- **Additional regional programs** – projects identified by stakeholders that were not originally included in the plan.
- **Ultra-distressed areas** – addresses the areas of the Gulf Region that were in dire need of rebuilt localized water distribution and sewer systems, but did not have the tax base to support such projects
- **Municipal infill areas** – where it is expected that the planned development of the area will exceed the historical capacity of the water infrastructure (Source: [1]).

6. PLAN IMPLEMENTATION STRATEGY

As a disaster recovery and critical infrastructure development plan, the Mississippi Gulf Region Water and Wastewater Plan's implementation depends heavily on immediate funding. The strategy for assuring that critical projects receive the funds already available was to prioritize the projects. The priority system used to rank projects for funding included five criteria, as follows:

1. Extent to which the project accommodates the expected demographic changes, recovery, and development resulting from Hurricane Katrina

   Key considerations:
   - Project in a area of severe storm damage and affects recovery and restoration
   - Project affects new development
   - Project provides service to existing housing/development
   - Project reduces vulnerability to storms

2. The project's impact on economic development and recovery;

   Key considerations:
   - Project affects economic development and recovery
   - Urgency of project – Project responds to immediate needs

3. The project's cost effectiveness, affordability, and benefits, regional and multijurisdictional

   Key considerations:
   - Project supports creation of new housing units
   - Project supports creation of new jobs
   - Project affordability and impact on user costs
   - County utility authority, local, or outside agency funding available for additional project elements
   - Project supports existing business
   - Project provides multi-jurisdictional and regional benefits

4. The time required to implement the project, where priority was given to projects that address immediate needs (within the next 10 years).
5. The project's necessity to correct or minimize an imminent future public health or environmental threat (Source: [1]).

7. OUTCOMES ASSESSMENT PROCESS

The MDEQ tracks the progress of the Basin Management Approach on their website and posts relevant material related to the developing plans, such as water quality reports and citizen's guides. There is, however, no publication tracking the outcomes of any initiatives set forth by the basin management plans.

The Mississippi Gulf Region Water and Wastewater Plan does not include specifications on how the implementation of the recommended projects will be tracked.

8. NEEDS, CHALLENGES AND CRITICAL PRIORITIES - INTERVIEW INSIGHTS

Mississippi has historically been rich is groundwater resources. This trend continues without apparent threats to the supply at this time, but the understanding exists at the state level that new well installations should be planned and monitored so as to not endanger this resource. As discussed in the summary above, reconstruction efforts in the Gulf Region are driving water infrastructure planning activities. The generally accepted method of planning for water resources in Mississippi is to build strong consensus at the local level. The state believes that any type of successful planning must have significant local input, and authority and regulatory tools should be used sparingly. Statewide water plans are developed through "bottom-up" planning, or merging the local and regional plans to compile a statewide plan.

The state of Mississippi recognizes that climate change could impact its water supply availability and that a plan for this should be developed.

Mississippi would like to see federal involvement in funding of water infrastructure, but not in developing water plans. This is because the state wants to see those who are held accountable by Mississippi residents making decisions on how to handle water resources, so that local constituents continue to have their needs met.

9. REFERENCES

[1] Mississippi Department of Environmental Quality (2006) Mississippi Gulf Region Water and Wastewater Plan. Retrieved 5/5/2009 from: http://www.msgulfregionplan.org/

[2] Mississippi Department of Environmental Quality Surface Water Division website. Retrieved 5/5/2009 from: http://www.deq.state.ms.us/MDEQ.nsf/page/WMB_Basin_Management_Approach?OpenDocument

[3] Mississippi Department of Environmental Quality Office of Land and Water Resources website. Retrieved 5/5/2009 from: http://www.deq.state.ms.us/mdeq.nsf/page/l&w_home