

MISSISSIPPI URBAN RESEARCH CENTER

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Urban Research**



Special Issue:
**“Implications of the 2021
Jackson Water Crisis: Past,
Present, and Future”**

**Recommendations
Guide**

**Mississippi Urban
Research Center**

101 W. Capitol Street
5th Floor
Jackson, MS 39201

Phone: 601-979-1386
Email: murc@jsums.edu



I. Introduction

To coincide with the anniversary of the February 2021 Ice Storm/Water Crisis in Jackson, MS, the Mississippi Urban Research Center (MURC) at Jackson State University released a special edition of its Online Journal of Rural and Urban Research, titled “Implications of the 2021 Jackson Water Crisis: Past, Present, and Future”.

This recommendations guide is intended to serve as a summary of the articles from academicians, researchers, and practitioners that discuss not only the water crisis’ social, economic, health, and political effects, but also perhaps more importantly, provides “real-world,” research-based recommendations on how to deal with future crises. The focus of the journal is to offer unique insights on the water crisis from a then, now, and future perspective.

The articles presented in this journal edition are in keeping with the Mississippi Urban Research Center’s mission of using basic and applied research to address urban problems and public policy for the purpose of improving the quality of life in urban areas. The special edition of the Online Journal of Rural and Urban Research, as well as this guide, provides information for use by public, private, and nonprofit organizations, elected officials and other stakeholders in creating policy decisions which protect and prepare the city and its residents in the event of future infrastructure failures and disasters such as the 2021 Jackson Water Crisis.

For additional information or to read the journal in its entirety, please visit the following:

<https://www.jsums.edu/murc/>

[files/2022/02/2022.OJRUR JacksonWaterCrisis Special.Issue .Final -1.pdf](https://www.jsums.edu/murc/files/2022/02/2022.OJRUR_JacksonWaterCrisis_Special.Issue_Final_-1.pdf)

II. Policy Recommendations Based Upon Research Findings

Title: **Challenges of an Aging Water System: The Jackson Water Crisis --- A Research Commentary**

Harvey Johnson, Jr.

Article Summary

This article examines some of the challenges of the provision of safe drinking water as a fundamental responsibility of local government, within the context of “The 2021 Jackson Water Crisis.” These challenges included: (1) the historic disparity in the provision of municipal services to local residents; (2) a decreasing population and dwindling tax base; (3) an increasing rate of poverty among the water system user base; and (4) adverse intergovernmental policies that placed the burden of financing improvements on local government and rate payers. The major conclusions identified in this article are that Jackson expended or obligated nearly \$150 million from 1997 to 2013 for water and sewer related projects; Jackson’s high rate of poverty is the most enduring challenge local officials face in attempts to correct the conditions in the system that contributed to the 2021 crisis; and adequate preparedness for events such as the winter storm of 2021 will require cooperation and resources from multiple levels of government.

Key Recommendations

- **Jackson must adopt a “game plan” and stick to it, making adjustments as circumstances dictate but consistently moving toward the long-range goals of the plan.** For instance, periodic assessments of the water fee rate structure must be done, and the appropriate adjustments made to satisfy bond holder requirements, as well as to meet routine operational costs. A plan that is prepared and sits on the shelf, no matter how comprehensive, is of no use.
- **The “game plan” should include a water system capital improvement plan, which spells out improvement needs, as well as the cost of implementation.** It is well established that local revenue alone cannot pay for the improvements, even with periodic rate adjustments. Jackson must consider this reality in devising a funding strategy to ensure long term, continuous plan implementation.
- **The successful and full implementation of the game plan will depend largely on the political will of local elected decision makers.** Some decisions during plan implementation will not be popular and/or embraced by the community at-large.
- **Jackson must aggressively solicit intergovernmental assistance in resolving the problems that are plaguing its aging water system.** The condition of municipal infrastructure across the nation has reached such a critical point that local governments, including Jackson, cannot solve the problem alone. The federal government appears to be finally stepping up to do its part in providing funding to resolve critical infrastructure issues (including the need for water system improvements) at the local level of government, but the resulting funding must be sent directly to local governments, and they must be given discretion in addressing local infrastructure priorities. Jackson city officials must push state government in Mississippi to follow the lead of the federal government in providing financial assistance to localities in the improvement of municipal infrastructure.

- **There are several initiatives that could be proposed to the State Legislature on behalf of the City of Jackson:**
 - ◆ The first would be the creation of a Payment in Lieu of Taxes (PILOT) program for Jackson. The concept was first placed on Jackson’s agenda over three decades ago and is now even more relevant. Moreover, there are many models in existence where state governments are making payments on an annual basis to support the provision of municipal services. Although “a steep hill to climb” in terms of eventual passage, it must be consistently, and insistentlly, placed on Jackson’s legislative agenda.
 - ◆ Jackson should consider adding a regional sales tax proposal to its legislative agenda. The taxing district would include municipalities in Hinds, Madison and Rankin counties. The proceeds from the regional tax would be distributed to municipalities based on population. Such a tax would address the “commuter tax” debate that has been raging for years, while recognizing that metropolitan residents (especially Jackson residents) are supporting a regional economy, rather than the economies of individual jurisdictions. One of the mayors of a suburban community has remarked that Jackson is the “trunk of the tree” and if the trunk dies, so will the “branches” (bedroom communities). This attitude must be embraced by the communities surrounding Jackson, and operationalized through true regional cooperation, such as a regional sales tax.
 - ◆ The third legislative initiative is further amendment of the Jackson 1% Sales Tax law. Jackson must press the Legislature to restore the power, and rightful responsibility, of overseeing the expenditure of local option sales tax dollars to the Mayor and City Council by dissolving or restructuring the 1% Sales Tax Commission. This needed change in the law would place millions of dollars under the direct control of local elected officials, allowing them to use public funds to correct some of the deficiencies in the water system that contributed to the 2021 Jackson Water Crisis.

Title: The Role of Black Churches amid COVID-19 and the Jackson Water Crisis
Ashley W. Jones, Ph.D., Antonio J. Gardner, Ph.D.

Article Summary

While dealing with the challenges presented by COVID-19, the mid-February 2021 winter snowstorm exposed many cracks in Jackson, Mississippi’s infrastructure by leaving nearly 40,000 of its Black residents without water. After weeks without clean water, local churches mobilized and responded to the crisis within their community by distributing water. This study examines the community’s resilience in using churches as a vehicle to cope with a water crisis during the COVID-19 pandemic. An analysis of data collected from semi-structured qualitative interviews with six Black pastors in Jackson revealed five themes: (1) historical context of access to water; (2) organizing in a crisis within a crisis; (3) use of technology to spread the word; (4) building and maintaining capacity; and (5) the Black church as a pillar in the community.

Key Recommendations

- **Encouraging respective African-American churches to document emergency preparedness plans.** Several pastors alluded to the need for churches to have documented emergency preparedness protocols to assist them in dealing with natural disasters and other crises appropriately. Most recently, the FAITH! (Fostering African-American Improvement in Total Health) program, the first academic-community partnership between the Mayo Clinic and African American churches, developed emergency preparedness manuals and disseminated COVID-19-related health messages.
- **Increasing African American church representation in municipality emergency preparedness plans.** While acknowledging the organizational policy-level changes that can occur within the church, many pastors shared that the church as an institution is limited in its capacity to make changes. They emphasized the need for consistent civic engagement to ensure citizens are active in elections and are holding city and other elected officials accountable for the measurable amount of change that needs to take place. Municipalities should purposefully incorporate African American churches into their emergency preparedness teams and plans to be well-equipped for such crises.

Title: **Water System Challenges in the Face of Population Declines: The Jackson, MS Experience**

Stephanie Otts, John J. Green, Anne Cafer, Olivia Deans, Catherine Janasie, Cristiane Q. Surbeck, and Kristine L. Willett

Article Summary

Jackson, Mississippi has faced numerous challenges with its drinking water and wastewater systems in part to infrastructure aging, deterioration, and weather crises. These issues contribute to subsequent environmental and public health problems. This study uses an interdisciplinary case study approach that combines the lenses of public health, civil engineering, law and policy, and population and development to generate an in-depth understanding of the 2021 Jackson Water Crisis. Drawing on the Community Resilience Framework, this study integrates a number of key issues in a single discourse, which is often not done at the national level. While there are many concerns, three of the most important are: (1) shrinking population; (2) infrastructure failures and legal violations; and (3) increased maintenance and compliance costs. This study argues these three challenges are interconnected and mutually reinforcing, and collectively contribute to the problem of poor water quality in Jackson, Mississippi.

Key Recommendations

- **Increase federal and state investment in Jackson's water infrastructure to ensure reliable access and enable compliance with environmental laws.** While Jackson may be able to obtain some financing through state revolving loan funds, federal grant programs, or public-private partnerships, these are unlikely to be sufficient. Even the recent passage of the \$1.2 trillion federal Infrastructure Investment and Jobs Act in November 2021 will not adequately funnel enough funds to Jackson. Pursuant to the state revolving fund formula, only \$429 million for water infrastructure will be available for the whole state of Mississippi over five years (White House, 2021). However, the state's 20-year investment need for water infrastructure is \$4.8 billion (U.S. EPA, 2018).

- **Ensure that investment decisions are made based on a full accounting of the costs.** The ongoing water system failures and their associated negative public health outcomes impose societal and economic costs, including: increased legal fees associated with enforcement actions; increased medical expenses for acute illness or chronic diseases from water contamination; and lost productivity for children exposed to lead.
- **Develop comprehensive plans for staffing and improving operations by the City of Jackson in partnership with community stakeholders.** As a step towards addressing inadequate staffing violations, the director of Jackson’s Public Works Department is seeking to increase salaries by 20% to improve recruitment and retention (Judin, 2021). Such expenditures are approved by the City Council and require local political support and advocacy. These plans should account for a shrinking tax base by: (1) considering more efficient, cost-effective resilient infrastructure; (2) taking a smart growth approach to strategic planning; (3) leveraging funds from the Infrastructure Investment and Jobs Act; and (4) cultivating public-private partnerships.
- **Pursue innovative methods of generating revenue for Jackson in light of a shrinking tax base.** One policy solution often promoted for meeting the current and future needs of a water system is consolidation (US Water Alliance, 2018). Water utility consolidation can result in, among other things, greater operational efficiencies, increased access to capital, and improved planning and risk management (U.S. Water Alliance & UNC, 2019).

Title: **An Explanation of the 2021 Jackson Water Crisis and Policy Suggestions for Sustainable Water Infrastructure in Jackson, Mississippi --- A Research Commentary**
Jae-Young Ko, Ph.D.

Article Summary

The Jackson 2021 Water Crisis was a triggering event that worsened municipal services coming from the city’s aging water infrastructure. About 43,000 residents in Jackson, Mississippi lost access to water for three weeks in February-March 2021 due to freezing weather and poorly maintained water mains. This study takes a chronological research design approach through a literature review to define trends and changes in residential population, sales, and property tax revenues in the City of Jackson. This study also examines the two major water infrastructure plans proposed by Mayor Harvey Johnson, Jr. in 2012, and Mayor Tony T. Yarber in 2016, and seeks to explain why those plans failed.

Key Recommendations

- **Develop diverse efforts to increase revenue.**
 - ◇ Another round of a one-percent sales tax increase is needed. The increased revenues from the increased sales tax rate would secure more funding for water infrastructure maintenance and improve Jackson’s Moody and Standard & Poor’s credit ratings, while also reducing the interest burden associated with repaying those bonds. Moody’s ratings of general obligation bonds and urban renewal revenue bonds for Jackson in 2019 were Baa3 and Ba1, respectively, which are medium ratings (City of Jackson, 2020). Jackson needs measures to boost its credit grade among the rating agencies.

- ◇ A new tax on all guns sold in the city limits should be enacted and increasing the gasoline tax. A new tax on firearms sold within the city limits will generate additional revenue for the city. Currently, the gasoline tax rate in Mississippi is among the lowest in the United States, only above Alaska and Missouri (Cammenga, 2020). Additional revenue from the increased gasoline tax will allow Jackson and other communities to work on infrastructure projects and maintenance continuously.
- ◇ During the Covid-19 pandemic, the federal government developed multiple financial programs supporting local governments, including the American Rescue Plan (ARP), and the Coronavirus Aid, Relief, and Economic Security (CARES) Act. Additional bills for supporting local governments' infrastructure (e.g., Drinking Water and Wastewater Infrastructure Act) have been introduced (Warren, 2021), and President Biden's one-trillion-dollar infrastructure bill passed and was signed into law in November 2021. Jackson should be aggressively pursuing funding from those federal programs.
- **Increased efforts for collecting water bills and consideration of affordability-based water billing.** Currently, there is more than \$100 million debt owed the city in unpaid water bills (AP, 2021). In addition, 14,000 of 43,000 customers have not received their water bills (AP, 2021). The hesitancy to pay water bills has been a constant problem since prior to the Johnson Administration in Jackson. The cost of providing tap water has been rising nationally, and a high level of delinquency in paying water bills among poor communities has been reported nationwide (Wogan, 2017). Shutting off a resident's water supply has been a conventional measure used to address delinquent accounts; however, more local governments have implemented a new water bill program based on residents' affordability. For example, the City of Philadelphia has implemented an income-based program for poor households whose income is at or below 150 percent of the federal poverty line (Wogan, 2017). Jackson is a poor community with a high level of poverty (25.4%) and a low level of median household income (\$38,888 in 2018) (U.S. Census, 2021). After considering the current economic conditions, collecting water bills regularly would be a daunting challenge, even after a new water meter is installed and generates an accurate water bill. Pressures to provide a permanent payment assistance program will increase, even after the water billing system is stabilized in the coming years.
- **New agency creation for enhanced inter-local government collaboration.** According to an inflow-outflow analysis done by the U.S. Census Bureau, more than 70% of jobs available in Jackson, Mississippi, have been taken by the commuters living in surrounding suburbs such as Flowood, Madison, Ridgeland, and other nearby cities (U.S. Census, 2020). The high level of commuters (70.1%) is partially the result of the continuing out-migration from Jackson, and it also shows the great need to establish a new influential regional institution to enhanced inter-local government collaboration, such as an 'Annual Central Mississippi Mayor Summit Meeting.' Currently, the Central Mississippi Planning & Development District (<http://cmpdd.org/>) exists, but cases of effective collaborations among local governments through the planning agency are hard to see. A more effective communication channel is needed for mayors and other decisionmakers to enhance collaboration among local governments in Central Mississippi.

Title: **The Jackson Water Crisis: A Qualitative Thematic Analysis of Online News Reporting**

Pedro M. Hernandez, Ph.D.

Article Summary

This study examined 102 online news articles/postings about the 2021 Jackson, MS winter storm and subsequent water crisis. Thematic qualitative analysis was used to review pertinent articles to characterize framing and trends in water crisis media coverage. There were three research questions utilized to guide this study: (1) *Were there major institutional failures during the Jackson Water Crisis (JWC)*; (2) *What was the thematic coverage of the news media during the JWC*; and (3) *What was the role of digital media in the initial stages of the JWC*? Based on journalistic perceptions, analysis of the crisis generated four themes: (1) water service interrupted/residents' water needs during the crisis; (2) legacy infrastructure runs parallel with the legacy of racism; (3) "White flight"; and (4) voluntarism and donations. This analysis of the JWC news coverage highlights the public perception of local and state residents and leaders, and helps to identify potential policy, institutional, and leadership areas that can be improved to address future water crisis events.

Key Recommendations

- **Mississippi officials should envision a significant overhaul of the state's Emergency Management (EM) Agency protocols.** The agency needs to establish stricter regulations and enforcement at all state and private institutions.
- **In the absence of meaningful changes in the EM system and other government agencies, partnerships between community/advocate groups and state academic institutions can be formed to seek funds from public and private foundations to deal with community crises.** Social workers and other professionals may act as community liaisons, advocates, and activists to develop more substantial political power for underrepresented communities in Jackson and Mississippi.
- **Financing the construction and maintenance of water infrastructure may include, but is not limited to, issuing municipal bonds, state revolving loan funds, federal grants and loan programs, and public-private partnerships.**

Title: **An Analysis of the Jackson Mississippi Water Crisis using Social and News Media**

Rishabh Shrestha, Ting Xiao, Dawn E. Wilkins

Article Summary

This study presents an analysis of social media posts and mass media communications that occurred during the 2021 Jackson Water Crisis (JWC). The research question addressed is whether social media can be used in real-time to aid municipalities in responding to crises more effectively and with less bias. For this study, both social media posts and online, mainstream mass media articles related to the JWC, were collected and analyzed. Data were statistically summarized to align with the timeline of the crisis. Additional analysis was conducted using "Sentiment analysis" and "Topic modeling" of the social media posts to provide a high-level understanding of the crisis' impact and the concerns of citizens. (Topic modeling helped to identify "tweet" topics which were categorized into four major topic areas: infrastructure, legislative, struggle, and racism. Sentiment analysis helped to find the positivity and negativity of the tweets and news articles.)

Key Recommendations

- **Social media aggregate data should be incorporated when evaluating public works offices to aid in reducing the disparity of services provided to citizens during events similar to the 2021 Jackson Water Crisis.** Social media aggregate data should also be considered when local government allocates infrastructure funds.
- **Development of city or regional dashboards to aid communities in real-time when a crisis occurs.** A city dashboard could incorporate data from different sources, including local government data, public survey data, local service data, environment data, crowd-sourced data, and social or news media data (Kitchin et al., 2016). By building a city dashboard, a city can:
 - ◊ Keep citizens informed during a crisis.
 - ◊ Provide real-time data for city managers and decisionmakers.
 - ◊ Create a historical record to allow communities to be more resilient in managing future disasters better.
 - ◊ Good examples include the dashboard for London (United Kingdom) (<https://citydashboard.org/london/>), and for Dublin (Republic of Ireland) (<https://www.dublindashboard.ie/>).
 - ◊ Features like crisis prediction and predictive alerts can be added to the dashboard.

Title: A Different Path Forward: Using Privatization to Avert Future Jackson (MS) Water Crises

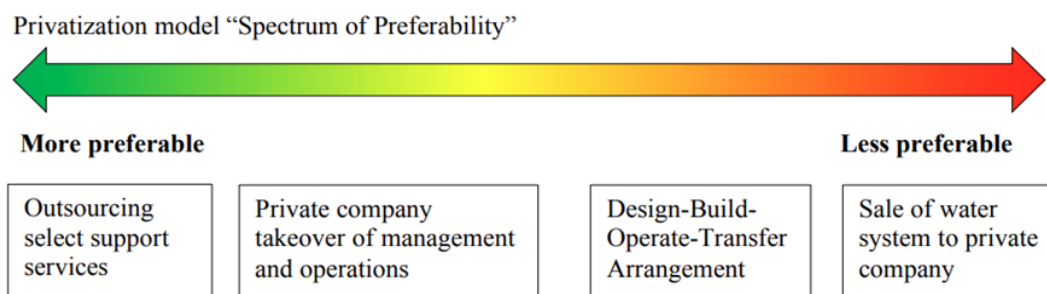
Sam Mozee, Jr., Ph.D., Sheryl Bacon, MPA, ABD

Article Summary

This policy study examines the potential advantages and disadvantages associated with cities using “privatization” as a viable method to manage their water systems. A qualitative research synthesis design allowed for the systematic compilation, comparison, and assessment of public policies addressing the privatization topic. This study’s major findings include the inability of privatization to serve as an effective “one-size-fits-all” implementation tool; the potential for privatization to produce both intended and unintended consequences; and privatization requiring years to implement and evaluate. Depending upon the particular circumstances of each water privatization project, the advantages of privatization do not necessarily outweigh the disadvantages. In terms of answering the research question of whether privatization can help Jackson avert future water crises, the accurate answer is “perhaps.”

Key Recommendations

- **Select the most appropriate privatization model.** Shown below is the authors’ “Spectrum of Preferability” range regarding the four main types of water system privatization models.



- **Cautiously and carefully structure contract terms and length.** Municipalities should consider limiting initial contract lengths to ten-year increments; contract terms should provide for judiciary, environmental, and administrative oversight; and contracts should limit/cap rates to prevent excessive increases.
- **Consider entering into public/private/non-profit partnership agreements.** One possible means for municipalities to continue publicly operating their water systems is to partner with a public trust (as implemented in Indianapolis, IN) or non-profit organization. Thirty-eight percent of privately-owned systems in the U.S. are owned by non-profits; however, the EPA reported in 2006 that smaller systems face larger financial strains under these conditions (Davis, 2018). As a smaller-sized city, it may take partnerships with multiple non-profits for Jackson's water system to operate on the same scale and capability similar to larger cities.
- **Utilize more federal and state funding to improve current public systems.** Another key strategy to improve water service while maintaining public ownership is to increase funding to cover the gaps left by insufficient and/or declining revenue streams. Directing sufficient federal funds from the COVID-19 American Rescue Act, and the proposed \$1.2 trillion federal infrastructure legislation, can help prevent the need for privatization.
- **Consider regional consolidation.** Regional consolidation is another potential approach to improving Jackson's water system. This approach involves entering into a collaborative agreement between Jackson and satellite cities like Brandon, Ridgeland, Byram, and Pearl to share their water resources and improve functionality while servicing a wider swath of the local population (Rozier, 2021).

