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Andrew I. E. Ewoh

*Kennesaw State University, ewohai@tsu.edu*

Lucica Matei

*National School of Political Studies and Public Administration*

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# Comparative Analysis of Municipal Public Services in Romania and the United States: The Case of Water and Wastewater Services

Andrew I. E. Ewoh

Kennesaw State University, Georgia,  
United States

Lucica Matei

National School of Political Studies and Public  
Administration, Bucharest, Romania

Some of the most important basic services provided by any level of government are the primary responsibility of municipalities, and urban managers devote more time and attention in making sure that these services are delivered. The availability of public services in any local jurisdiction usually depends on location, history, laws and regulations. Some local governments use alternative service delivery such as public-private partnerships, inter-governmental agreements, and contracting out or privatization. Using an exploratory case study approach, this paper provides a comparative analysis of water and wastewater services in Romania and the United States. Six cities were selected from both countries for the purpose of illustration. In sum, the analysis concludes with recommendations on how to improve as well as measure the efficiency and effectiveness of municipal water and wastewater services in Romania and the United States.

*Keywords:* municipal public services, water and wastewater services, inter-governmental agreements, privatization

Some of the most important basic services provided by any level of government are the primary responsibility of municipalities, and urban managers devote more time and attention in making sure that these services are delivered. Basic municipal services that are essentially crucial to communities and the quality of life of their citizens include providing water, disposing solid waste, repairing streets, fire service, police protection, schools, transportation, health and human services, as well as parks and recreation. The availability of these services in any city or local jurisdiction usually depends on location, history, laws and regulations. Some local governments use alternative service delivery such as public-private partnerships, inter-governmental agreements, and contracting out or privatization (England, Pelissero, & Morgan, 2012).

Since joining the European Union, Romania, despite of its unitary form of governance, has been compelled not only to decentralize its administrative structure, but also to reform its public municipal services. In view of these developments, local autonomy principle now is applied to certain areas of public administration due to the transfer of major responsibilities to local communities, but the opportunity for citizen participation is limited. Conversely, in the United States, however, local governments have apparently defined

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**Corresponding author:** Andrew I. E. Ewoh, Ph.D., director and professor of public administration, Kennesaw State University; research fields: public administration, public policy, human resource management, governance, government-business relations, public-private partnerships, non-profit organizations. E-mail: [aewoh@kennesaw.edu](mailto:aewoh@kennesaw.edu).

Lucica Matei, Ph.D., professor and dean of administrative sciences, National School of Political Studies and Public Administration; research fields: public administration, theoretical and applied economics. E-mail: [lmatei@snsipa.ro](mailto:lmatei@snsipa.ro).

jurisdiction within a federal system imbued with a provision for citizen participation in deciding the level of services they want in concert with the applicable taxation. Despite of the governance differences that exist between Romania and the United States, cities and towns within these countries are concerned with how to efficiently and effectively deliver public services as well as remain accountable to their citizens.

In terms of service goals, municipal scholars and practitioners generally agree on four essential goals such as efficiency, effectiveness, equity, and responsiveness (England et al., 2012, pp. 195-196). Since cities tend to achieve more than one of these goals, the purpose of this analysis is to examine how municipalities in Romania and the United States provide water and wastewater services to their residents. Three cities, respectively, were selected from Romania and the United States for the purpose of illustration. Using an exploratory case study approach, the paper provides a comparative analysis of water and wastewater services in Romania and the United States. The paper uses the first three sections to explore municipal services in the two countries under review focusing on water and wastewater systems, followed by a discussion of the similarities and differences in terms of governance and economy, and the approaches used to manage or deliver services such as inter-governmental agreements, public-private collaborations, and privatization or private sector contracting. In the final section, the analysis concludes with how to improve as well as measure the efficiency and effectiveness of municipal water and wastewater services in Romania and the United States.

### **Romania Municipal Services: History and Reform**

As recently as 1989, Romania was governed by a totalitarian regime. Public services were dealt with at the central level. When Romania adopted a democratic constitution in the early 1990s, it began the tedious process of decentralizing the organization of its government, which included the delivery of public services. Romania is divided into counties, towns, and communes. Each has its own legal entity. Counties have the possibility of being divided into several municipalities: each with its own local autonomy. Romania is currently divided into 42 counties including the Bucharest City that enjoys the status of a county, 262 towns (of which 80 are classified as municipalities because they have over 18 thousand inhabitants), and 2,686 communes (Coman, Crai, Radulescu, & Stanciulescu, 2001, p. 357). The territorial boundary of each county as well as cities within its jurisdiction, towns, municipalities or communes is defined by the law on local public administration (Law No. 215/2001), and these units of government are empowered, as legal entities, to own and sell public and/or private properties. Due to the large task of decentralizing Romanian government, officials shifted progress and development reform with a regional effort. This subsequently turned policy-making into a regionalized effort as well.

The Romanian central government and its local authorities are responsible for all aspects of public administration. While the central government through its ministries (i.e., bureaucratic departments) deals with national issues, the local governments are responsible for local activities within their administrative authority. Both the central and local governments work in tandem in harmonizing national and local policies which are usually coordinated through administrative commissions (Coman et al., 2001).

According to Dorina Vicol (2009), the most important element of reform was the local authorities' responsibility to identify and effectively solve community problems. However, decentralization is a long and drawn out process. It is a gradual and timely effort not to be rushed by government officials. Coman and colleagues (2001, p. 376) reported that "Flexibility in defining structure, tasks and positions to accomplish its tasks allows the local government to be more responsive and responsible to community needs and

expectations”. Flexibility is essential to time as a management principle because people have the tendency to become unresponsive and uncooperative when hurried and manipulated. It is important to consider Romania’s history as a centralized totalitarian country in order to understand the major changes that its citizens are presently experiencing. The previously existing system left little resources for available services. However, the main goals of the current administration are “to modernize, expand, and bring efficiency to the service sector, to meet public expectations but also to allow for new services to be developed” (Cernicova, 2003, p. 66).

Romania has also implemented a fiscal decentralization as a part of its reform. This involves attempting to give localities the ability to use and distribute their own funds as needed. This also gives local governments the ability to borrow money if needed. Although the idea is to give localities this fiscal authority, in reality “the legal structure continues to give central government control over most local government spending” (The Urban Institute, 1997, p. 6). It is pertinent to note here that the decentralization and reform of Romania’s government is an ongoing process: “Romania lacks the stability of the legislation necessary to deepen the reforms already realized and the political willingness to implement the existing regulations” (Dragos & Neamtu, 2007, p. 647).

### **United States Municipal Services**

The United States is made up of 50 states and over 89 thousand units of governments with some overlapping jurisdictions at the local level (U.S. Census Bureau, 2009). Municipal services in the United States are delivered in various ways by different levels of government. The national, state, and local levels of government perform various public services for its citizens. It is also delivered in a host of different ways. Since the beginning of the American history, some services have been outsourced to private companies, while others are still handled by a government entity. For example, the United States Postal Service provides a national public service. Each state, city, county or any unit of government is held accountable for its services. However, most states have privatized electrical power. For instance, most of Georgia’s power comes from the Georgia Power Company. There is also the possibility of some municipalities privatizing a specific service, and others providing that service themselves.

The decision of what public services are to be provided and who is to provide them is mainly a question of politics in the United States. Not only do local governments contend with competing values, but also “political judgments will ultimately decide the particular, muddled, optimal (by definition) mixture of values that will temporarily prevail at any given moment” (Savas, 1978, p. 806). These values and competing ideals are the drivers behind which public services are deemed most important. They are also one of the deciding factors who will most effectively and efficiently deliver these services as needed. According to Keefer and Khemani (2005, p. 1), “Even in democracies, politicians often have incentives to divert resources... that benefit a few citizens at the expense of many”. Although money tends to follow political clout, large amounts of expenditure do not guarantee high levels of public service. A study done by Ira Sharkansky in 1967 belies the assumption that the more spending there is, the better the services provided. In the sections that follow, we examine how municipalities in Romania and the United States deal with water and wastewater services.

### **Municipal Water and Wastewater Services in Romania and the United States**

Since the beginning of civilization, the demand for water has been one of the basic human needs. In view of this, municipalities all over the world must assure the provision of water supply and wastewater management as a part of the essential public services to their populations. In Romania and the United States, the economic

importance of water as a strategic resource has compelled urban economic scholars as well as public administrators to constantly explore ways to provide quality drinking water and wastewater systems. Since Romania and the United States share common challenges in water and wastewater services, this comparative analysis explores how these services are delivered in both countries using a case study approach to look at three municipalities in each country.

### **The Case of Three Selected Cities in Romania**

The Romanian water and wastewater sector is witnessing a transformation from a county level dominated public service enterprise to local autonomy where major responsibilities are transferred to local communities (i.e., cities and, in some cases, cities and counties within a regional framework). To support European Union's water framework directives, Romanian water management policy objective is to reach good ecological status for all waters by 2015, through an integrated management of the country's water resources at the national level by the Ministry of Environment and Forests as well as the National Administration (i.e., Romania Waters). From this perspective, we now turn to a discussion of municipal water services in Bucharest, Brasov, and Tulcea City. These cities are selected not only because of their experiences in the water sector, but also due to their involvement in the transition from local to regional water governance process.

**Bucharest's experience with municipal water and wastewater services.** Bucharest is not only the capital city of Romania, but also the largest municipality in the country. In 2000, Vivendi, a French company, won the contract for the privatization of the Bucharest municipal water services through a concession, and this became the largest privatization of a municipal-owned water company in Central and Eastern Europe. The main reason for Vivendi's selection lies on its ability of assuring lower tariff increase during the first year without tariff adjustment for the next four years; and downward adjustment thereafter, in order to provide overall savings for the consumers in the long run. Before 2000, however, water and sanitation services to about 2.3 million inhabitants of Bucharest were provided by a state-owned municipal company (RGAB), which received 25 million dollars loan from the World Bank for the rehabilitation of water supply system and modernization of the existing meters. This long-term loan was designed to help remedy other problems including the dissipation of up to 50 percent of all water produced due to leaks and waste in the distribution process, and these residents in some parts of the city could not get water in the upper floors of their apartment buildings. Despite of the loan's good intention to aid in tackling these problems, RGAB was unable to efficiently upgrade its equipment due to low tariff and non-payment of bills by its customers (Joseph, 2011).

Although the wastewater treatment system in Romania is still at its infancy due to small number of population connected to sewage, the Bucharest City does not have a wastewater treatment plant. There is an ongoing construction work at the Glina wastewater treatment station, located in Ilfov County near Bucharest, originally started during the Communist era. The tax for the project was approved by the Bucharest Council in October 2008 to cover the loans from the European Bank for Reconstruction and Development (EBRD), and the European Investment Bank, respectively. Individuals and judicial entities with contracts with Apa Nova Bucharest are responsible for wastewater tax. It is pertinent to note here that Apa Nova Bucharest is responsible for the administration of water resources—treatment and water distribution to consumers, and collection and removal of wastewater. About 83.69 percent are held by Veolia Apa and 16.31 percent by the Bucharest City (FRD Center, 2009, 2010). Veolia Apa received its first water and wastewater contract for the cities of Bucharest and Ploiesti in 2000.

**Brasov's experience with municipal water and wastewater services.** Brasov is located in the central part of Romania, about 166 km north of Bucharest, and is the 8th populated city in the country with about 300,000 inhabitants (Popa, 2011, p. 22). It is interesting to note here that the Brasov City also serves as the administrative center of the Brasov County. The water distribution system in Brasov started in 1893, experienced a crucial development during the World War II, and was a part of the industrialization process. Today, the Water Company Brasov also known as Compania Apa Brasov (CAB) is responsible for the administration of water resources (such as treatment and supply of drinking water, and collection and treatment of wastewater) in Brasov and other surrounding localities.

Just like in the Bucharest City, Brasov experienced water crisis in the 1990s due to problems such as inadequate water supply to meet demand, unavailability of meters, different tariffs for various types of consumers, water loss from obsolete pipes, operational cost overruns, insufficient pressure to pump water to high buildings and other crucial areas of the city. To remedy these problems, financial investments were made which paved the way not only for the elimination of cross-subsidies, but also for the establishment of a political palatable tariff system. The tariffs were increased in order to generate enough revenue for infrastructural investments. In addition, municipal utilities development program (MUDP) for network rehabilitation was initiated in 1995 with a loan from EBRD. The implementation of the MUDP was started in 1997 and completed in 2001 with successful results that included rehabilitation of major pipes with substantial network connections for water distribution with appropriate network and water meters, respectively, and installation of the first leakage/network detection equipment.

Furthermore, Brasov benefited from the European Union's Instrument for Structural Policies for Pre-accession (ISPA) projects. Launched in 2000 by the European Commission, the objectives of ISPA were as follows:

- (1) Familiarizing the candidate countries with the policies, procedures and the funding principles of the EU;
- (2) Helping them catch up with EU environmental standards;
- (3) Upgrading and expanding links with the trans-European transport networks (European Commission, 2011).

The ISPA measures allowed Brasov to rehabilitate more than 100 km of water pipes as well as install 4,550 water meters. Pressure control systems for Brasov water network and district metering were subsets of ISPA project supported by the EU and co-financed by EBRD (Popa, 2011, p. 28). On June 1, 2011, EBRD approved a 27.5 million Euros loan to Compania Apa Brasov for a project with two components. The first component pertains to the Cohesion Fund co-financing of up to 19 million Euros in major investments to enable the Brasov County to implement the European Union's directives on water and wastewater management. It is expected that the EBRD's loan will co-finance a regional investment project of up to 190 million Euros that contains a substantial grant support from EU, the Romanian government, and the local government under the Romanian Cohesion Fund Program. The second component deals with company transformation, involving the restructuring of 8.5 million Euros of an existing Municipal Environmental Loan Facility from EBRD signed on May 18, 2002 in adherence to CAB's "transformation into a commercial company and regional operator and change in security" (European Bank for Reconstruction and Development, 2011).

**Tulcea's experience under regional-focused governance.** Tulcea County is made up of five cities: Tulcea, Sulina, Babadag, Isaccea, and Măcin. The Tulcea City serves as the county's administrative center and

has a population of 92,379 (National Institute of Statistics, 2007). Although the administrative structure of Tulcea experienced some changes in the past, the Local Council decided in 2004 to delegate its water services to Aquaserv, a commercial, public-owned company. About a year afterwards, the county deliberated on the idea of regionalization, and created an Intercommunity Development Association (IDA) in 2007 with membership comprising of the five cities and the county in compliance with Romanian legislation on efficient and adequate provision of public services by local public administration (Law No. 215/2011). Although Babadag participated in the IDA deliberations, it withdrew its membership from IDA, and the remaining members delegated their water administration to Aquaserv and became the company's shareholders (see Table 1).

Table 1

*Key Figures of the IDA Members in Tulcea County: Inhabitants in 2006, Connection and Tariff for Drinking Water and Wastewater in 2007 and Their Share in the ROC*

Locality	Inhabitants (2006)	Drinking water (2007)		Wastewater/Sewage (2007)		Share in ROC (%)
		Connections (%)	Tariff (Ron/m <sup>3</sup> )	Connections (%)	Tariff (Ron/m <sup>3</sup> )	
Tulcea County	251,614					10
Tulcea City	92,652	96	1.62	69	0.68	75
Măcin City	11,034	81	1.41	26	0.67	9
Isaccea City	5,248	65	1.37	18	0.45	4
Sulina City	4,630	75	1.72	31	0.16	4

*Note.* Source: Kruijf, Dinica, and Augustijn (2009, p. 1067).

The authors of a 2009 study noted that the general manager of the Aquaserv contended that IDA's creation paved the way for a good working relation with the local councils.

However, most interviewees indicated that the establishment of IDA was not such an important change. It was rather a formality that needed to be fulfilled in order to merge water services into one ROC (Regional Operating Company) and get access to EU funds. (Kruijf et al., 2009, p. 1066)

Despite of the efficiency reason for the reorganization of water services in Tulcea County, the change seriously affected small operators that used to function as public services departments. The reorganization compelled each small operator in the IDA membership to become an Operational Center (OC) and comply with ROC's performance rules and regulations, which created a negative financial burden on Aquaserv, but was seen as a positive improvement for the small operative companies (OCs). While Aquaserv is able to pay its employee salaries and utilities, it is indebted to the state and Romania Waters.

According to Kruijf et al. (2009), the factors surrounding the company's debts were attributed to the following: employees' salary increments at the OCs to bring them at par with Tulcea City; acquisition of new equipment such as cars, new meters, as well as geographical information systems; and tariffs in smaller cities that did not cover operating costs. Although Table 1 shows that tariffs in the smaller cities were lower than in Tulcea City, regionalization is usually accompanied by a new tariff policy strategy based on full cost-recovery. In view of this, yearly tariff increases are expected in all the participating cities to help the company in water business. It is expected that a uniform tariff for water and wastewater services will be achieved before the end of 2011. The County Council gives the residents of the Sulina City a 50 percent subsidy to enable them pay their water bills (Kruijf et al., 2009, p. 1067).

### **The Case of Three Selected Cities in the United States**

Water and wastewater services have been the most contested political issues since the history of the United States. Unlike Romania, the United States' water sector is well developed and managed, but it has its own problems. Given the comparative nature of this analysis, we now turn to the discussion of municipal water and wastewater services in three cities in the United States: Houston, Atlanta, and Woodstock. These cities were selected not only because of their experiences in the water sector, but also due to their involvement in some forms of regional water governance process and the utilization of different mechanisms in the delivery of drinking water and wastewater management.

**Houston's experience with municipal water and wastewater services.** Houston is the fourth largest city in the United States, the administrative center of Harris County, and the largest city in the State of Texas with an estimated population of 2.1 million people (U.S. Census Bureau, 2010a). The City of Houston provides water and wastewater services to people inside and those close to its corporate limits. While residents and businesses that receive water and wastewater services directly from the city are its customers, some within the city boundary have their own private water districts. Nearby cities and residents of the suburban areas receive services from their own towns or municipal utility districts.

When it comes to public service delivery, the City of Houston has a reputation for big, efficient and friendly service. Although the major functions of the City's Department of Public Works and Engineering (PWE) include administration, planning, maintenance, construction management, and technical engineering of infrastructure, it is responsible for the production and distribution of more than 146 billion gallons of water per annum and treatment of more than 90 billion of gallons per year of wastewater (City of Houston, 2011a). In Houston, the PWE's Public Utilities Division is the home for the city's Water and Wastewater Utility, a regulated public health agency governed by state and federal laws. To accomplish its mission, the Public Utilities Division has not only institutionalized a plan for continuous improvement as an implementation strategy, but also its drinking water system has always maintained a "Superior" rating, the highest rating for water quality issued by the Texas Commission on Environmental Quality (TCEQ).

Moreover, the City of Houston owns and operates 40 wastewater treatment plants responsible for treating an average of 277 million gallons per day, and 420 lift stations over a 650 square mile region. The wastewater system is managed through a Supervisory Control and Data Acquisition central monitoring system in order to adhere to state and federal regulatory mandates, and provides 24-hour per day wastewater services to its customers. In fact, due to its success in adhering to both TCEQ and the United States Environmental Protection Agency discharge compliance rate of 99 percent, the wastewater system has consistently received Gold and Silver awards from the National Association of Clean Water Agencies. Overall, the City of Houston provides water and wastewater services daily to about 2.8 million customers using pipelines and physical facilities geographically located in a four-county service area (in excess of 600 square miles). In 2009, the Public Utilities Division reported an operating budget of \$268 million and managed a capital improvement plan of approximately \$275 million (City of Houston, 2011b).

It is interesting to note here that the City of Houston has been benefiting from reusing biosolids that are produced throughout the city since 1921.

The first two activated sludge treatment plants, known as the North and South Side Plants, were constructed in 1916, and the first heat dryer was installed at the City's North Side Plant in 1921. The end product was distributed to agricultural end-users, including local rice farmers, in the Houston area. Heat-dried material from the City is marketed as

“Hou-Actinite”, a registered trademark, since 1930. (Hyare, Scholler, & Battenfield, 2002, p. 965)

Currently, the City has two new high efficiency rotary drum dryers at the Almeda Sims facility as part of its ongoing capital improvement projects. These dryers will be utilized to convert biosolids to pelletized fertilizer (City of Houston, 2011c).

**Atlanta’s experience with municipal water and wastewater services.** Atlanta is the capital as well as the largest city in the State of Georgia. It is located in the Fulton County and is ranked the 38th largest city in the United States with a population of 515,843 (U.S. Census Bureau, 2010b). The Department of Watershed Management (DWM) is responsible for providing water and wastewater services to businesses and residents of the City of Atlanta. The DWM is composed of bureaus of Drinking Water, Wastewater Treatment and Collection, Engineering Services, Financial Administration, Public Relations and Communications, Watershed Protection, and Program Performance.

The City of Atlanta is currently implementing a Clean Water Atlanta Program, a \$4 billion project designed to rehabilitate the City’s water and wastewater infrastructure. Clean Water Atlanta is a comprehensive, long-term plan with the goal of ensuring the cleanest urban streams and rivers in the nation to enable the city to meet its water quality requirements in the short and long run. The Bureau of Waste Treatment manages the DWM’s four wastewater plants, four combined sewer overflow treatment facilities, 16 pump stations and over 1,500 miles of sanitary and combined sewers (City of Atlanta, 2011a).

Furthermore, Atlanta uses its drinking water Cross-Connection Control and Backflow (CCCB) Program to adhere to federal, state, and local rules and regulations. These rules and regulations were created to provide protection for the city’s water supply system against any form of contamination and pollution resulting from backflow and/or back siphonage through cross-connection or through plumbing connections. It is pertinent to note here that the United States Congress passed the Safe Drinking Water Act (SDWA) in 1974, which authorized the U.S. Environmental Protection Agency to create reasonable standards for drinking water quality. The State of Georgia adopted the SDWA provision in 1977, through the passage of the Georgia Safe Drinking Water of 1977, and the Georgia Board of Natural Resources established the rules for safe drinking water within the same year, which was amended in 1983 requiring all public water systems to develop CCCB programs (City of Atlanta, 2011b).

Funding for the maintenance of the Atlanta’s water and wastewater systems was approved by the City Council under a four-year rate program in 2008, and is expected to expire on June 30, 2012. Also in 2008, over 70 percent of the citizens voted to reauthorize the Municipal Option Sales Tax that generated one-third of the DWM’s revenue, which is expected to expire in 2012, but was likely to be reauthorized by the voters for another four-year period. Since the success of the Clean Water Atlanta Program is dependent on these rate increases, it is expected that both area businesses and citizens will always support the program as an economic development venture for the sustainability of the present and future populations (City of Atlanta, 2011c).

Currently the State of Georgia is facing a battle with two other states, Alabama and Florida, for its right to access freshwater from the Chattahoochee River Basin. The problem arose because of rapid growth of the City of Atlanta in the early 1990s and its increased usage of water from the basin, including Lake Lanier. The Army Corps of Engineers, builders and operators of the lake, began diverting water from the Chattahoochee and Lake Lanier to fit the increased needs of the City of Atlanta. This diversion of water is greatly reducing the other states’ access to freshwater. Now, a dispute over water has emerged between Georgia, Florida, and Alabama,

and a federal judge has ordered them to come to an agreement within the next three years. Georgia has proposed using a combination of methods to address this issue: to conserve, capture and control the state's water supply (Hunter, 2009). While the issue of freshwater access will be revisited in the discussion section below, we now turn to the exploration of the City of Woodstock's provision of water and wastewater services in its jurisdiction.

**Woodstock's experience with municipal water and wastewater services.** The City of Woodstock is located in Cherokee County, and situated in the Atlanta metropolitan area of the State of Georgia, with a population of 22,274 (U.S. Census Bureau, 2010c). Due to the City's economic growth in the 21st century, it has earned a reputation for being one of the fastest growing suburban areas in the United States. Woodstock Water and Sewage Department provides water and wastewater services to residents and businesses. Although the City's first water system was installed in 1952, its operation today is funded by user fees.

One major obstacle to the Woodstock Water and Sewage Department (WWSD) is the fact that it does not have its own source of water supply such as a reservoir or groundwater well system, but it maintains its sewage treatment capacity. Nonetheless, the City's water supply is purchased from Cherokee and Cobb counties through an inter-governmental, contractual arrangement. In terms of economic of scale, WWSD reliance on outside vendors puts it in a precarious position which, in turn, affects both residents and businesses in the form of rate increases. This condition is likely to continue since WWSD is responsible for maintaining sewage treatment (i.e., wastewater management). How can WWSD overcome its major challenge in the near or distant future? One obvious alternative is to outsource or contract its entire water and wastewater services to Cherokee County Water and Sewerage Authority, a municipal corporation. Another alternative is to internalize the current situation through rate increases, and build a groundwater well system in the future when the city's population doubles in size due to its exponential growth rate.

Regardless of the issues raised here, WWSD prides itself for meeting and exceeding federal, state, and local rules and regulations on water and wastewater management. It also maintains pump stations, water and sewer lines within the city boundary (City of Woodstock, 2011).

### **Discussion on Romania and United States Municipal Water and Wastewater Services**

Apart from having democratically elected municipalities, Romania and the United States have common driving factors and challenges for considering either regionalization or integrated water and wastewater services. These factors include, but are not limited to, increased efficiency, access to finance through private sector participation, cost sharing, and access to water resources and integrated resources through professional or institutional capacity to achieve economies of scale in order to save money for all the stakeholders. From the foregoing case study, it is apparent that municipal water sector is not the same in all the cities explored in this analysis. Despite of technological advancement in the 21st century, water and wastewater treatment are standardized to a certain degree, but two facilities even in the same country are somewhat different. Since water reclamation and reuse entails water supply and wastewater services, it is highly unlikely to find two similar or identical facilities in both countries.

In the United States, cities such as Atlanta, Houston, and Woodstock have water and wastewater collection and treatment plants that make it possible for more wastewater treatment and reclaimed water distribution systems to be retrofitted whenever a water reclamation mechanism is deployed. Conversely, in Romania, while large municipalities like Bucharest, Brasov, and Tulcea have their own drinking water supply, although

inadequate in terms of capacity in some areas as earlier discussed, they have not only inadequate treatment capacity, but also not enough sewerage facilities. In fact, the Bucharest City, the Romanian capital and largest municipality, does not have its own wastewater treatment facility—one is under construction in a nearby county.

As earlier discussed, the Romania water and wastewater sector is witnessing a transformation from local to regional-focused governance, which is triggered by the country's accession to the European Union. According to Kruijf et al. (2009), the regionalization process was certainly a top-down mandate from the national government without much input from the regional or local stakeholders. Nonetheless, the regional operating councils and the Ministry of Environment and Forestry capitalized on a policy window of opportunity and cooperated with regional operating companies in order to obtain the EU funds to improve their water services. While the Tulcea case demonstrated that regionalization process was designed to achieve economies of scale and help small municipalities, there was still a need for additional governance restructuring through a politically palatable, citizen-driven reform to provide more transparency and grass-root participation in the water and wastewater management in Romania. A good lesson can be learned from the Atlanta metropolitan experience discussed in this section.

To overcome the issue of freshwater earlier referenced in this analysis, the Atlanta metropolitan region has pursued various participatory initiatives such as those focused on water allocation among states and sewer overflow remedies (Cowie & Borrett, 2005). One example that chronicles citizen participation through a collective choice process in the urban water management is discussed here for illustrative purpose.

In 2001, the Georgia General Assembly, on the basis of the Clean Water Initiative, established the Metropolitan North Georgia Water Planning District (also known as Metro Water District). As an integrated urban management organization, Metro Water District was created to preserve and protect water resources in the 15-county metropolitan area. While Metro Water District's plans were expected to direct the region's water infrastructural development, the local governments were responsible for its implementation. The participation structure is composed of eight unique components, about 27 people on the decision-making group and over 250 participants on the advisory or consultative category (Cowie & Borrett, 2005, p. 478). The District's plans for water resource management adopted in 2003 were modified in May 2009 to include water supply and water conservation management, wastewater management, and watershed management. While these plans provide state officials and local municipalities with recommendations for actions, policies, and investment, the Metro Water District periodically reviews the plans' implementation and reports to the Georgia Environmental Protection Division (GA EPD) annually.

In terms of transparency and information rules, the enabling legislation that created by the Metro Water District required its plans to include education and public awareness components to reach the majority of the area residents, including an interactive website covering Georgia's 14 major river basins. Since the region is located in five portions of these basins, the website is supposed to serve as a statewide resource for upstream-downstream connections as part of the implementation strategy (Cowie & Borrett, 2005; Metropolitan North Georgia Water Planning District, 2010).

To accomplish the goal of integrated planning, Metro Water District was also charged with regional cooperation in the development of water quality monitoring program and regional database. Since water planning and water management are not the same, the District frequently consults the local water and wastewater managers to increase the probability of successful implementation of its plans to merge planning

with operation. Others on the consultative capacity are composed of the representatives from local water and wastewater utilities as well as authorities within the region in a Technical Coordination Committee (TCC). Because of their expertise, the TCC members actively engage the elected government officials on the Metro Water District's Governing Board to provide the necessary synergy between planning and operation of the District's mission. The oversight of Metro Water District's activities is done by GAEPD, a state agency that permits water withdrawals and wastewater discharges, which makes sure that any established plans are consistent with agency standards. The Metro Water District's example shows that institutional change can emerge from external actors because an intensive participatory initiative, in the case of Atlanta, provides good institutional and professional capacity for communication, education, and regulation of the water and wastewater management on a continuous basis for the benefit of all the stakeholders.

### **Conclusions**

The foregoing comparative analysis of Romania and the United States water and wastewater systems has shown that water is one of the basic human needs. The unequal access to water resources by different municipalities or jurisdictions either within a region or national boundary demands that an integrated or regional approach should be deployed to improve human access to water. Similarly, this analysis uncovers that the involvement and support of all levels of government are required for any successful implementation of water and wastewater services in any political system due to the type of stakeholders that emerge during the policy process.

In both Romanian and the United States, there are still many water and wastewater systems that require upgrading and replacing, but it is always politically not feasible for elected government officials to commit themselves in making the required investments to improve their water system without either an inter-governmental financing mechanism or privatization or some forms of public-private partnerships. Using an exploratory case approach, this comparative analysis has shown that public works activities such as water and wastewater services are characterized with system maintenance functions (Williams, 1971), and can only be managed efficiently and effectively through privatization and/or inter-governmental agreements (LeRoux & Carr, 2007; LeRoux & Pandey, 2011).

Furthermore, while municipalities in Romania and the United States are obliged to provide good drinking water to the satisfaction of their citizens, there are obvious differences on how they implement this as a public service. Municipalities in the United States have reliable, safe and universally accepted service levels with some challenges in maintaining and increasing quality. Conversely, cities in Romania are still struggling to assure adequate services to their citizens due to demand for new connections and new meters, and not particularly perturbed by quality improvements.

In sum, to efficiently and effectively service their customers, municipalities and/or companies in the business of water and wastewater management should engage not only using surveys to measure the opinion of their clients, but also providing education and public awareness resources to affect the desired changes in behavior and practices necessary to achieve long-term improvements in water use and water quality. These changes will not materialize until citizens understand water issues and the consequences of environmental pollution. It is expected that any population explosion or growth will always compel governments to look for alternative water resources. In view of this, all levels of government should take appropriate actions through legislative initiatives to encourage the preservation and protection of water as a basic human need, and allow

citizens to participate in the planning of their water and wastewater systems.

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