

Public-Private Water Governance: Case study of processes, actors and timelines at the city of Windhoek Industrial Effluent Ujams Wastewater Treatment Plant (UWTP)

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KEY FINDINGS

1. The main actors involved in decision-making and implementation to create a wastewater reclamation plant, the Ujams Wastewater Treatment Plant to address the issue of water supply to industries and pollution from industrial effluent in the city of Windhoek were the City of Windhoek (CoW) and Veolia Water Solutions and Technologies which will work alongside VA Tech Wabagin to design, build, install and commission the wastewater treatment plant.
2. This governance arrangement is a public-private partnership (PPP) whereby water reclamation is undertaken by a private company which is therefore unaccountable to the citizens of Windhoek - the Ujams Wastewater Treatment Co (Pty) Ltd, which is a special-purpose company.
3. This is considered an 'unconventional water source' by the City of Windhoek and a key water reclamation project in the city.
4. Minimal consideration of climate change is evident in the reclamation project.

Introduction and aim

This brief presents an investigation into the governance of the Ujams Wastewater Treatment Plant (UWTP) and its role in addressing water insecurity in the city of Windhoek¹. The case study objectives were:

- a. Analysis of the governance of the UWTP; and
- b. Assess the extent to which climate change considerations, including the Namibia Climate Change Policy, have been or are being incorporated during planning and implementation of UWTP.

The aim of this brief is to showcase the results of the governance research into the UWTP that treats industrial wastewater in the City of Windhoek (CoW) in Namibia.

Context

Namibia, like many countries in semi-arid areas, is characterized by high climatic variability in the form of persistent droughts, unpredictable and variable rainfall patterns, leading to scarcity of water (Government of the Republic of Namibia, 2011). Coupled with rapid urbanization (3.1%), the threats of persistent water scarcity are real. The surge in population has created issues for urban planning and vulnerabilities such as water shortages, energy problems, poor sanitation and waste management, with resultant health problems.

Water insecurity is defined here as an unacceptable level of water-related risks to humans and ecosystems, coupled with a lack of available water of sufficient quantity and quality to support livelihoods, national security, human health and ecosystem services (Bakker, 2012; Cook and Bakker, 2012), and it has manifested in the city. The persistent droughts and the unpredictable and variable rainfall patterns, due in part to climate change, adversely affect the availability and supply of acceptable quantities and quality of water to the CoW. Hence there is a strain on service delivery, especially water. Although quantity and quality of water supply are central to water security (Cook and Bakker, 2012), water governance has a central role in the issue of water security.

Urban water governance

Bakker (2003) defines water governance as "the range of political, organizational and administrative processes through which community interests are articulated, their input is incorporated, decisions are made and implemented, and decision makers are held accountable in the development of service delivery and management of water resources and delivery of water services". The concept of an urban governance configuration which looks at the complex arrangements of multi-scalar actors and entanglements of socio-economic, political, and environmental processes shaping urban development and how they come together at a particular time and place in any city, is used here to frame the governance case study (Scott, 2017).



Methods

A semi-structured questionnaire was used to obtain governance data from (how many) actors involved in the establishment and operation of the UWTP. The data was analysed using the urban governance configuration described in Table 1.

Governance of the Ujams Wastewater Treatment Plant (UWTP)

The UWTP is situated in Northern Industrial Area and has a capacity of 5175 m³/day. The Ujams Wastewater Treatment Company (UWTC) has a team of five people since it is fully automated. The UWTP treats industrial wastewater only from Northern and Lafrenz Industrial Areas, which is gravity fed to the reclamation plant. Treated effluent is discharged into the Klein Windhoek River. As part of the effort to alleviate water demands and provide alternative or additional water for industrial reuse, some of the effluent is used for example for irrigation and industry reuse such as road construction and paving. The elements of the governance configuration that together have resulted in the outcome of a wastewater plan are as follows:

Table 1: Elements of concept of urban governance configuration (Adopted from Scott, 2017)

	ELEMENT	CONTENT
1.	Discourses	Language used by actors to frame their interests in any policy arena. There may be multiple discourses that are used to argue by actors for their interest in any decision-making process. Dominant discourses will become institutionalized into policy.
2.	The actors	Multiple, multi-scalar actors (both state and non-state), their resources and the power relations between them.
3.	Legislation, policies and mandates	Legislation, policies that give mandates and power to actors to implement policies.
4.	Materialities	Consists of the technologies and platforms (GIS-ITC software and their products), and infrastructure (dams, pipelines, storm water drains) are increasingly important elements of the governance configuration.
5.	Decision-making processes	Actual work done by actors through their discourses, in deliberating and debating issues and formulating policies.
		
	Implementation of policies and outcomes	Examples of outcomes: <ul style="list-style-type: none"> • The building of roads. • The provision of water pipelines to carry water. • Increase of quality of life as residents receive electricity in their homes. • Establishment of Ujams Windhoek Industrial effluent reclamation plant.

1. Actors

The UWTP is owned by a public-private partnership between Veolia (France), CIM (Austria) and WABAG (Germany), in a Build Own, Operate and Transfer (BOOT) contract with the CoW. It is therefore a public-private partnership. It is built and owned by CoW but operated by the company with a view to transfer management back to the municipality 21 years from its inception. It was piloted for a year (2010-2011) and was commissioned in 2014.

State:

- a. Ministry of Agriculture Water and Forestry (the regulating body).
- b. CoW (implementor):
 - i. Administrative actors (Bureaucracy) (no decision-making authority); Strategic Executive Forum (make recommendations); Chief Executive Officer and Departmental Strategic Executives; Department of Infrastructure Water Technical Services;
 - ii. Political actors including both Management Committee and Full Council (takes decisions).

Non-state actors:

- a. Veolia Water Solutions and Technologies South Africa (Veolia) (private sector)
- b. International: WABAG, Veolia, CIM (Private sector owners).
- c. Other: consultants (e.g. AFRICON) and researchers (e.g. ZERI Project).
- d. Industrial effluent suppliers: Industries such as Brewery, Abattoir, Beverage, Tannery.

2. Discourses

There are a number of water-related discourses. The

dominant water discourse is that “water is a scarce resource”, used by the CoW and water users, especially the water-dependent industries. This is combined with the discourse of “water as a scarce commodity”, since water is sold by NamWater, the bulk supplier to the CoW and other municipalities. CoW who distributes and sells the water to city residents and other users such as industries. Since water is often in short supply due to drought and variability in rainfall, the city views treatment and hence reclamation of water as an important “unconventional source of water” that can alleviate demand for water for multiple use. The other emergent discourse is the reduction of pollution of the environment from industrial effluent. Climate change vulnerability adversely affects water supply to the city. This is another important emerging discourse – “the consideration of climate change in critical water infrastructure decisions” is now being used amongst various stakeholders as articulated on the basis of the National Climate Change Policy and Namibia Climate Change Strategy and Action Plan. Lastly the discourse of “co-operation” during the most recent drought of 2013-2017 has led to the awareness of more concerted efforts and cooperation amongst key stakeholders i.e. CoW, NamWater, Ministry of Agriculture Water and Forestry (MAWF).

3. Legislation, policies and mandates

Establishment and operation of the UWTP fulfils the mandates of the following Acts, Policies, Strategies and Plans:

- a. Water and Environmental Legislation: National Water Policy White Paper 2000; Water Supply and Sanitation Policy 2008; Water Resources Management Act 24 of 2013; and Environmental Management Act of 2004.

- b. Mandates of:
 - i. National agencies: Water Resources Management (WRM) Water Demand Management and Aquifer management; WRM Bulk water supply and wastewater treatment; WRM Pollution control; WRM Water Quality monitoring; WRM Wastewater treatment effluent monitoring; WRM Industrial Pollution monitoring; and the Climate Change Policy 2011 and Namibia Climate Change Strategy and Action Plan 2013-2022
 - ii. Local agencies (CoW): The Bulk Water Master Plan; Sewer Master Plan; and Windhoek Climate Change Strategy and Action Plan (awaiting ratification).

4. Materialities

For the UJAMS, material elements include the following:

- a. Water source and infrastructure: NamWater's three dam system. Bulk water transported via pipeline to Windhoek; and water distributed by CoW via pipes to industries such as Brewery, Abattoir, Beverage, and Tannery (and other water users).
- b. Industrial effluent: Initially drained from the industrial area into the environment (nearby riverbeds/channels).
- c. Establishment and operation of the UWTP.
- d. Technologies: Biological digestion: Oxidation ponds; ISO 9001 2008 certification; automation of plant.
- e. Processes: fine screening, grit removal, dry weather buffer tank, fine sieving, membrane filtration, UV-disinfection, clear water tank and sludge treatment.

5. Decision-making processes

- a. Water-dependent industries established and operated in Windhoek. The effluent initially discharged into the environment leading to pollution of areas where it was disposed.
- b. The CoW established and operated oxidation ponds to address the pollution and odour problem. Oxidation ponds were repositories for the oxidative processing of industrial effluent. Processing ponds gradually became overloaded and unable to handle the load, resulting in inadequately treated effluent discharged into the Klein Windhoek River, and the pollution load reaching Swakoppoort Dam.
- c. Drought exerted more problems on water security. This was compounded by high urbanization leading to high demand for water. Hence the need for unconventional sources of water.
- d. The CoW in consultation with MAWF and other actors invited bids for alternative ways to treat industrial effluent to avoid pollution and also to reclaim wastewater. Veolia and WABAG, a European

manufacturer of water treatment technological equipment (including drinking water treatment, industrial wastewater treatment, cleaning of swimming pool water and wastewater treatment) bid for this water related contract.

- e. They were awarded the contract to design, build, own and operate this effluent treatment plant for the Ujams Industrial Park located in the north in Windhoek. It caters for effluents emanating from industrial facilities namely: the Brewery, the Abattoir, Beverage Company, Chocolate producer, and a Tannery.

6. Outcome of Governance Configuration

The output of the set of elements in the governance configuration was the establishment and operation of Ujams Windhoek Industrial Effluent Reclamation Plant.

Conclusion

There are different ways in which diverse actors including but not limited to the government, private and public sector, and civil society at large interact and intervene to address issues that affect them. In this case study, analysis of governance issues using elements of the concept of urban governance configuration proposed by Scott (2017) revealed that there are different actors that were involved in discussion and decision-making to address the issue of water supply to industries, pollution from industrial effluent and the need to find diverse alternatives to the water insecurity problem. They acted according to the mandates of a range of legislation, policy and strategic plans. The City of Windhoek had a majority share of decision making regarding addressing the problems of industrial water effluent highlighted as it created a tender for the wastewater reclamation plant. Initial pollution and failure of oxidation ponds led to different solutions that were developed and implemented. The case study shows that with a particular environment of material water scarcity, and availability of technological solutions, a local municipality (CoW) acted within its mandates to set up the governance arrangement of a public-private partnership under the BOOT conditions to provide an unconventional water source for Windhoek. Companies such as the neoliberal special purpose company, the Ujams Wastewater Treatment Plant Pty Ltd, have been criticised for their lack of accountability to citizens.

- i. The study was developed in support of the FRACTAL Project which aims at generation, understanding and incorporation of climate change information into urban decision-making in southern African Cities including the City of Windhoek.