



Regional disparity in access to basic public services in Saudi Arabia: A sustainability challenge

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ABSTRACT

Measuring progress toward water and sanitation provision requires a sharper focus on intranational disparity in access. This paper analyses access levels to electricity, drinking water and sanitation in Saudi Arabia's thirteen provinces from an equity perspective. Substantial disparity in access to piped water and sewerage services exists across the provinces. While access to national electricity grid slightly varies from 98.6% of dwellings in the Eastern province to 95.3 in Hail province, the percentage of dwellings connected to piped water ranged from only 10% in Al-Baha province to 90.1% in the Eastern province. Only 3.6% and 5.0% of dwellings in Al-Baha and Najran provinces respectively were connected to public sewer systems, compared with 77.4% in the Eastern province. The paper concludes that key to more equitable delivery of basic public services in Saudi Arabia is to decentralize infrastructure development to provincial and municipal governments, formulate and implement water and sanitation policies with an emphasis on expanding coverage in the underserved regions and to build decentralized sewer systems.

1. Introduction

Provision of adequate basic services such as electricity, drinking water, and sanitation is an increasingly important livelihood, sustainability, and public policy issue. The sixth goal of the 2030 Agenda for Sustainable Development (SD) reaffirms the commitment of the United Nations (UN) to achieving universal and equitable access to improved drinking water and sanitation for all by 2030 (United Nations, 2015). While improved drinking water sources are piped water to dwelling or yard, borehole, protected spring and neatly collected rainwater, improved sanitation facilities refer to such facilities that hygienically separate waste from human contact and are exclusively used by members of a single household: toilets that flush to sewer system or septic tank, composting toilets, pit latrines with slab and ventilated improved pit (VIP) latrines (WHO/UNICEF, 2015). The delivery of community public services can be described as the process of ensuring access to services, which includes decisions about the quantity and quality of services to be provided. Access to adequate basic services determines people's quality of life and is a key indicator of SD (UN-Habitat, 2003).

However, 9% of the global population and 11% of people in developing countries lack access to improved drinking water sources in 2015. Similarly, 32% of the global population and 38% of the population in the developing regions lack access to improved sanitation in the same year, which led to most countries in low-income countries

missing the sanitation target of the Millennium Development Goals (MDG) that aimed to cut in half the percentage of people lacking sustainable access to safe sanitation by 2015 (UN, 2015). The absence of adequate sanitation and drinking water causes severe health risks such as exposure to severe excreta-related and water-borne diseases (including diarrhea, hepatitis, and typhoid) and undermines effort towards reducing poverty, infant mortality, and social inequality (Bartram et al., 2005; Fox, 1994; Montgomery and Elimelech, 2007). Worldwide, about 88% of diarrheal incidence has been associated with poor sanitation and unclean water, and that expediting access to improved sanitation facilities produces immense health benefits that include up to 37% and 77% reduction in diarrhea and schistosomiasis risks, respectively (Bartram et al., 2005).

In Saudi Arabia, equitable access to basic public services is among the goals of the Ninth National Development Plan (NDP) and has also been enshrined in the country's Vision 2030 (Government of Saudi Arabia, 2016). From 1990 to 2015, there was improvement in the proportion of the total population with access to electricity (87%–94%), improved drinking water (92%–97%) and improved sanitation (92%–100%), according to 2016 World Development Indicators (World Bank, 2016). However, measuring progress in access to water and sanitation based on national coverage presents a biased picture of accomplishment and overstates the level of achievement, while obscuring the presence of major challenges to further progress (Abubakar,

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2016; Fuller et al., 2016). Despite being the richest country in the Middle East and the 15th in the world, with a GDP of \$653.2 billion in 2015 (CIA, 2016) and notwithstanding the substantial investment on water and sanitation infrastructure in the past thirty years thanks to revenues the government earned from crude oil exports (Elhadj, 2004), some parts of the country lack access to or have insufficient supply of drinking water and sanitation services (Abubakar and Aina, 2016; Ouda et al., 2014, 2004). This is an issue of grave concern that very few studies have investigated. Indeed, achieving the equity goals of the 9th NDP and Vision 2030 requires a much sharper focus on regional disparities in access to water and sanitation. Identifying inequalities in delivering essential public services where they occur allows targeted interventions toward the deprived areas (Abubakar, 2017a; Baquero et al., 2016; Pullan et al., 2014).

This paper explores regional variations in access to electricity, drinking water and sanitation in Saudi Arabia, and suggests ways for more equitable services delivery. Similar prior studies have assessed the water demand-supply gap and the challenges of meeting the increasing water demand (Ouda, 2013), the features of existing water sources and sector-wise water consumptions trends (Chowdhury and Al-Zahrani, 2015), and the political, economic, and natural factors affecting the delivery of household water and sanitation services (Elhadj, 2004). However, to the best of our knowledge, no previous study has investigated regional disparity in access to basic urban services in the country. The next section reviews the literature on equity in the delivery of basic public services in the development context. Section 3 on methodology describes the study area to provide the context within which the delivery of basic services occurs, as well as data sources and analytical techniques. This is followed by study findings and discussions in section 4. Section 5 recommends ways toward more equitable delivery of basic services in Saudi Arabia and section 6 concludes the paper.

2. Equity in the delivery of essential public services in developing countries

Basic public services are such services that are essential for the preservation of life (drinking water, sanitation, electrical power, and healthcare), enlightenment (schools and libraries), and the pursuit of happiness (parks and recreation). Their delivery is a leading instrument for poverty reduction and overall human development (Baer, 1985). Drinking water is the water supplied for domestic and personal uses that include drinking, food preparation, as well as sanitation and hygiene (Abubakar, 2016). Sanitation, on the other hand, refers to a system that promotes appropriate disposal of human waste to protect and improve public and environmental health (Abubakar, 2017a). Networked services such as electricity, water, and sanitation require infrastructure development, systems operation, billing and collection of revenues from tariffs, as well as managing and maintaining the systems (Abubakar, 2016; Guy et al., 2001). As such, the public sector is generally favored over private-sector for reasons that include cost-effectiveness given the substantial investment required in developing infrastructure which cannot be duplicated, the need to regulate the provision of services that are consumed universally, and to avoid exploitative pricing and exclusion, and the opinion that free markets would under-supply essential services that bestow societal benefit (Thoenen, 2007). Thus, public monopoly is the dominant mode of water supply in developed and developing countries.

However, the public sector in developing countries is overwhelmed by rapid urbanization, limited resources and insufficient technical and managerial capacity to adequately deliver basic urban services. Mabogunje (1990) concludes that utility agencies in most developing countries, when faced with inadequate budgets, serve some areas better than others and handle the rich better than the poor in terms of urban services delivery. The concept of equity means “fairness” in allocating resources and services, usually done based on community needs

(Stanley et al., 2016). The term differs from the notion of equality, which denotes equal distribution of resources to communities regardless of their needs or socioeconomic status. The equity perspective in the delivery of essential public services is usually based on spatial or distributional equity that refers to how available the services are to communities living in an area (Goff and Crow, 2014). According to the UN Joint Monitoring Program, equity measure of water and sanitation delivery refers to disparity in the proportions of populations or households that use improved drinking water sources and improved sanitation facilities by regions, income category, and between rural and urban areas (WHO/UNICEF, 2011). The present study utilizes equity measure of regional disparity because the three services have spatial and universal qualities as they are delivered on a large scale to a geographical area through networks or points for shared consumption. Equity as measured by income levels was not considered because of lack of data. Equitable provision of basic urban services is based on the recognition that societies are often unequal, and thus allocation of resources should address any existing imbalances in coverage levels.

Equity is an important goal of urban governance, with significant impact on livelihoods, public health, and human survival, especially for water, electricity, and sanitation that are precondition for life and for many kinds of domestic and socioeconomic activities. Social equity in access to resources and essential public services is one of the three pillars of sustainable development that must be ensured for a more sustainable future (Abubakar and Aina, 2016). According to Goff and Crow (2014), given that access to adequate and safe water can elevate people out of poverty or condemn them to it, enduring success of drinking water supply systems depends on how equity concerns are incorporated. Also, access to adequate sanitation is associated with protecting human dignity, improved public and environmental health, higher school attendance by children and individual's prosperity (Abubakar, 2017a).

On the other hand, inequity in delivering essential public services entails systematically excluding some areas or class of people from having access to the services (Gulyani et al., 2005). Thus, we need to understand the implications when service distribution patterns are unequal. In determining who gets what services, how much, and when, Lineberry (1977) provides three possible explanations:

- The ecological hypothesis suggests that service provision is influenced by some ecological aspects of urban neighborhoods such as geographical character, age, density, and land use type. For instance, if the cost of providing public services varies from one area to another because of topography or land use variation, then varying levels of service provision may result.
- The underclass hypothesis explains the roles of income, race/ethnicity and political power on the distribution of urban services. It posits that neighborhoods dominated by (i) the poor, (ii) racial/ethnic minorities and (iii) those with lower social capital (e.g., education) often experience lower quality or inadequate services because these classes of people lack the resources and organizational skills necessary to ensure bureaucratic responsiveness.
- The bureaucratic decision hypothesis has also been advanced for the variation in the levels of public services. This hypothesis indicates that a decision that influences service delivery could be based on official rules such as public policies, plan provisions, or procedure for hooking up with city water supply or sewerage system. Similarly, discretionary decision-making (e.g., when and how a utility official will respond to a customer request for services provision or utility maintenance) is postulated to largely account for different service levels and distribution patterns in cities and regions.

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