

Water in South Africa: Where Vulnerability, Access and Opportunity Align



Country at a Glance

Population	52.98 million
Languages	Zulu (22.7%), Xhosa (16%), Afrikaans (13.5%), English (9.6%)
GDP (2013 PPP)	\$350.6 billion
GDP Per Capita PPP	\$11,910.20 USD
GDP Growth 2013	1.9%
Average 2009-2013	1.92% (5 year average)
Urbanization Rate	64%



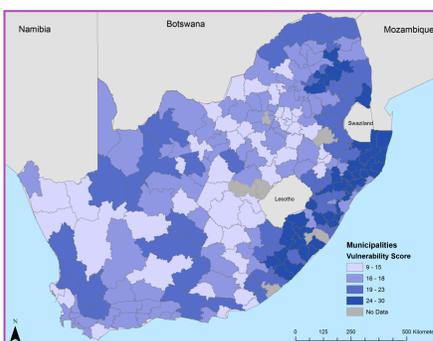
South Africa Background

South Africa is an upper-middle income country, newly considered to be one of the up and coming BRICS countries. A former Dutch and then British colony, South Africa became a republic in 1961. In 1948, the National Party came to power and instituted a policy of Apartheid in the country, forcing a separation of the races and oppression of the non-white majority. The African National Congress (ANC), led by Nelson Mandela and others, finally succeeded in bringing about majority rule and multi-racial elections in 1994. Since then, the country has strived to build a lasting democracy, peace, and economic growth, despite the history of oppression and social inequality that still colors many interactions in the country. The most recent national elections took place in May 2014, when Jacob Zuma of the ANC was reelected to his second term as President. The country's branches of government are spread through its three capital cities; Pretoria, Cape Town, and Bloemfontein. South Africa is a driver of growth for all of Africa and constitutes 38% of Sub-Saharan African GDP. It is also the source of expertise and investment on the continent, with South African companies setting many industry standards. The country still has substantial issues related to socio-economic inequality. Land redistribution, for example, remains a major issue because most farmland is still white owned. 95% of the poor are black and unemployment remains around 24%. South Africa has one of the highest Gini coefficients in the world at 0.70.

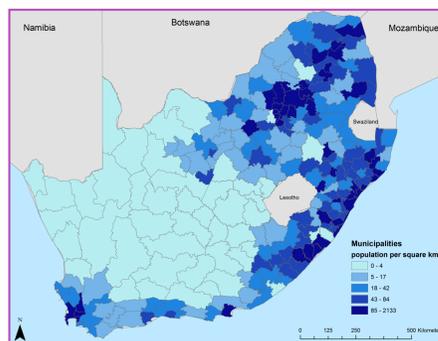
Water Needs, Vulnerability, and Connectivity

According to World Bank data, 91% of people have access to an improved water source, one of the highest percentages in Africa. This still leaves 4.5 million people without access countrywide. During apartheid, movement of the majority black population was heavily restricted, preventing these people from moving to urban centers. Even so, the growth in urban population has remained at a steady 2-3% annually since 1990. Since the end of apartheid, potable water and basic sanitation were brought to an additional 9 and 6.4 million people, respectively. The South African government had set a goal of 100% water and sanitation supply coverage by 2014 which has not been met. Additionally, the population sometimes struggles with very poorly functioning systems that rarely deliver the water and sanitation promised. Infrastructure maintenance has been neglected in favor of further service extensions, meaning future infrastructure needs will be great.

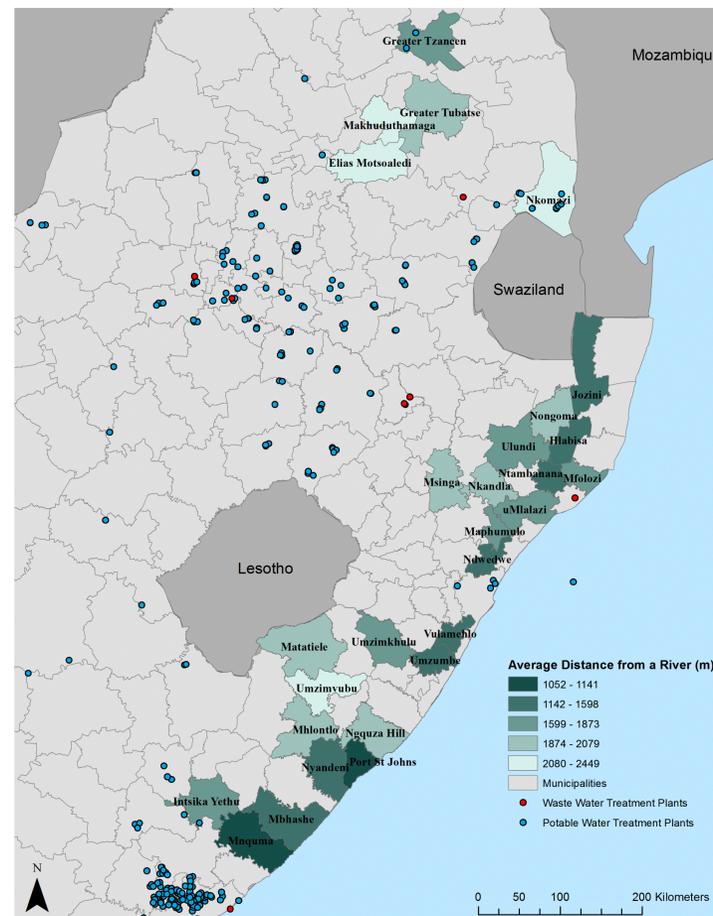
South Africa by Water Vulnerability



South Africa Population Density



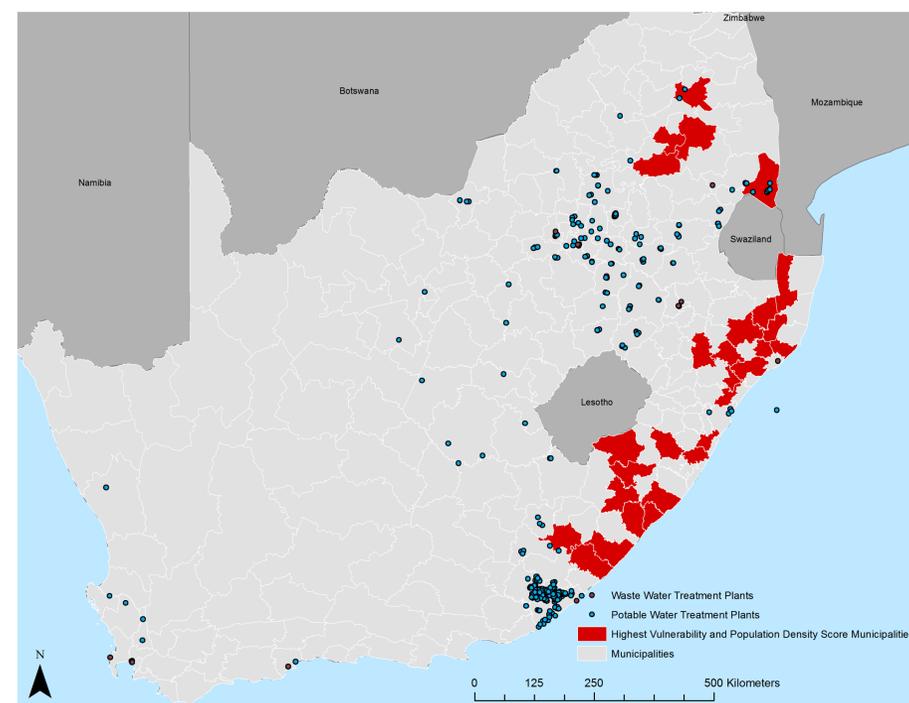
Vulnerable Municipalities Lack Services, Not Opportunity



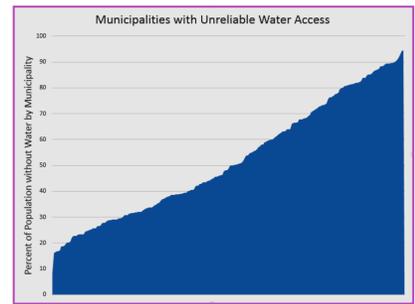
Investment Attractiveness

South Africa is generally an attractive country for private investment, as it has stable and well developed capital markets. South Africa ranks second in Sub-Saharan Africa, after Mauritius, for the ease of doing business. Access to electricity pulls the country's rating down

Highly Vulnerable, Densely Populated Areas: Few Services



substantially, with South Africa receiving very good scores in all other business categories. If private companies can win the rights to water concessions and determine sites where they will succeed, positive returns are likely.



Analysis and Methodology

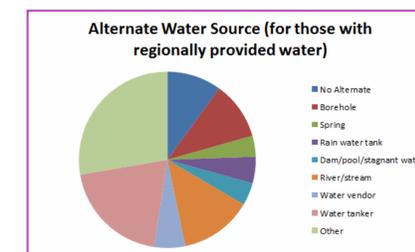
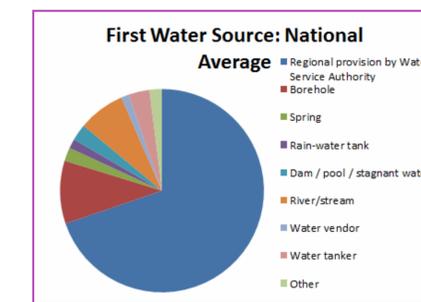
The project goal was to determine which South African municipalities most require investments in water infrastructure, and to determine among those municipalities which have attributes that make them promising investments. This analysis was conducted by first creating a vulnerability score for each municipality, using 8 indicators of water vulnerability; percent of the population with no piped water, percent of the population that experienced service interruptions greater than 2 days last year, percent without reliable service, percent using a dam/pool/stagnant water as their primary or secondary source of water, percent using a river/stream as primary or secondary source of water, and those with no alternate source of water. The most vulnerable municipalities were then cross-referenced with the most densely populated municipalities, to find the largest populations with the greatest need. To determine investment feasibility, these were then compared to the current locations of water treatment plants and the average distance within a municipality to a river or stream. Water infrastructure is easier to build when there is water nearby.

Results

The municipalities in the top-middle map that are the lightest color green are the most vulnerable, densely populated, and have the lowest average distance to rivers. Those, light green, municipalities without water treatment plants currently stand out as possible investment opportunities. They are: Makhuduthamaga, Elias Motsoaledi and Umzimvubu.

Limitations

South African data is generally very good, however it does not exist for every municipality for all measures of vulnerability. Data on water and sanitation treatment plants does not contain information on what is actually measured at those plants. It is also likely that not all sites are mapped in this data-set. A major limitation, therefore, is that there may actually be treatment plants in the municipalities that stand out as promising, that are not shown on the map. There may also be infrastructure projects underway or in the pipeline and this analysis could not be included, given the scope of this project. Companies need consider numerous factors when making investment decisions, and these factors could not be analyzed here.



by : Yvonne Durbin May 2015

Projection: Africa Lambert Conformal Conic
Data Sources: Statistics South Africa—2011 South Africa Census, South Africa National Biodiversity Institute 2008