

# Developing Africa's infrastructure: The rough road to better services

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**Afrobarometer Dispatch No. 3 | Carolyn Logan**

## Summary

Inadequate access to basic infrastructure and development services remains a key impediment to improving health, welfare, and security for many Africans. While large majorities have ready access to schools and cell-phone services, many Africans still do not enjoy adequate access to health clinics and police posts, as well as to electricity and water supply services, especially in rural areas. (Note: In this paper we use the term "access" to refer to the *availability* of services in a given area, without reference to the specific capacity of any individual or household to actually obtain the services.)

As Leonard Wantchekon noted in a recent World Bank Blog posting<sup>1</sup>, there appear to be strong linkages between poverty and access to these basic services and infrastructure. At the recent G20 summit, South African President Jacob Zuma joined the other BRICS (Brazil, Russia, India, and China) in calling for greater investment in infrastructure as a means to reduce poverty and promote economic growth and job creation. Yet as African Statistics Day (18 November 2014) reminds us with its theme of "Quality Data to Support African Progress," there are few available indicators of the level of public access to these basic services and facilities. The World Bank and African Development Bank provide aggregate, country-level statistics on rates of school enrolment, government health expenditures, and related indicators, but these indicators do not reveal whether citizens enjoy ready access to these services in their communities.

By reporting direct community-level observations, Afrobarometer data can provide unique insight into the scope of the infrastructure challenges facing Africa. Findings reveal an enormous need for investment, especially in rural infrastructure. The greatest needs are evident in the energy, water, health, and security sectors.

## Afrobarometer surveys

Afrobarometer is an African-led, non-partisan research network that conducts public attitude surveys on democracy, governance, economic conditions, and related issues across more than 30 countries in Africa. Five rounds of surveys have been conducted between 1999 and 2013, and Round 6 surveys are currently underway (2014-2015). Afrobarometer conducts face-to-face interviews in the language of the respondent's choice with nationally representative samples of between 1,200 and 2,400 respondents in each country.

The contextual data on service infrastructure reported here is captured before and after interviews with survey respondents. Afrobarometer field teams make on-the-ground

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<sup>1</sup> Leonard Wantchekon, 2014, "Breaking the cycle of rural poverty: One infrastructure investment at a time," posted on World Bank Blog "Africa Can End Poverty," 14 October 2014. Available at <http://blogs.worldbank.org/africacan/breaking-cycle-rural-poverty-one-infrastructure-investment-time>

observations in each sampled census enumeration area (EA)<sup>2</sup> that they visit about the services and facilities that are available in the area. These observations are recorded and confirmed by survey field supervisors. Since the EAs visited are selected to represent the population and the country as a whole, these data provide reliable indicators of infrastructure and service availability. Thus, in addition to capturing popular attitudes about government management of a country's infrastructure needs during respondent interviews, Afrobarometer captures unique indicators about the availability of basic services to support Africans' livelihoods and well-being.

## Key findings

- While access to mobile-phone networks (93%) and schools (88%) is quite widespread, other services fall far behind. Less than two-thirds of surveyed areas have ready access to an electricity grid (64%), health clinic (62%), and piped water (59%).
- State provision of basic security services is even more limited; police posts are accessible in only 38% of the areas visited, suggesting a significant gap in meeting citizens' safety and security needs.
- Country-level differences in access to service infrastructure are enormous: 89% lack access to piped water in Liberia, while teams report 100% access in Mauritius.
- Rural-urban differences are also large, especially with respect to access to electricity (48 percentage point gap in favour of urban areas), piped water (45 point gap), sewerage (49 points), paved roads (44 point gap), and police stations (38 point gap).
- Poverty levels tend to be significantly higher in areas without access to these services compared to areas that do have access.

## Scope of the infrastructure gap

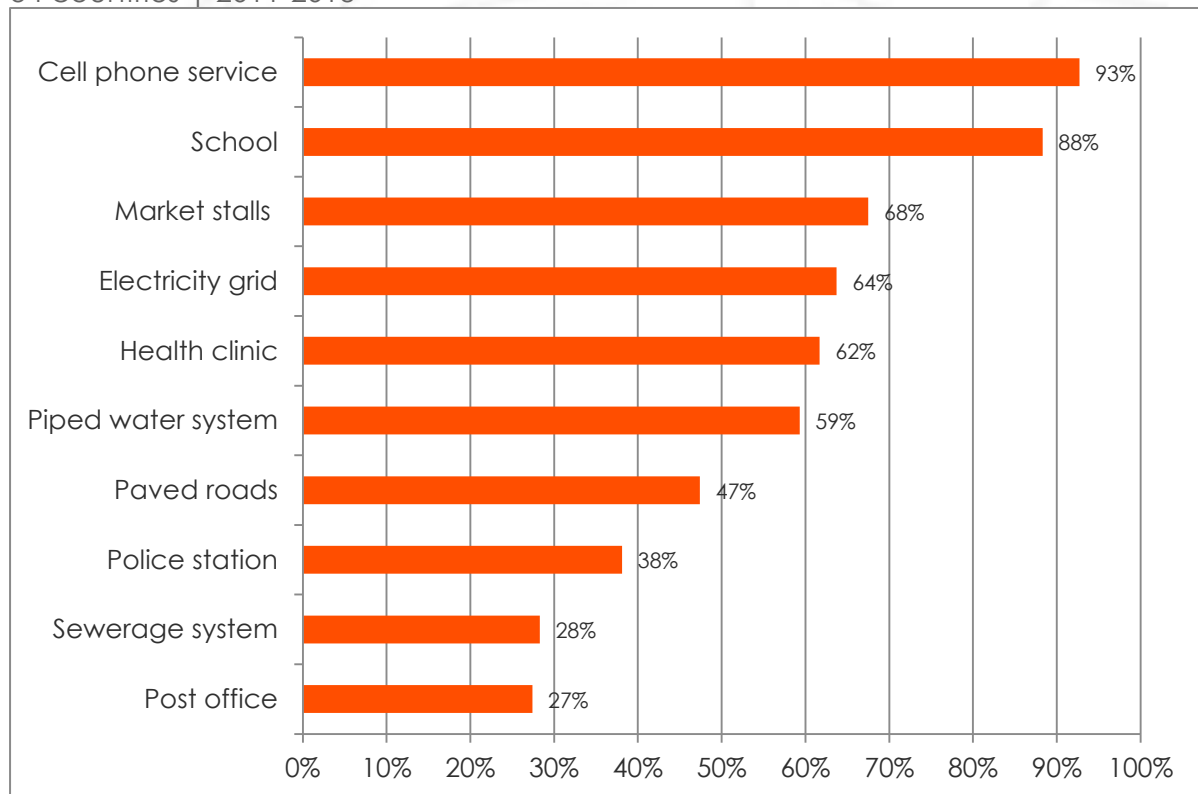
Africans face highly variable access to basic services in their communities. Cell-phone coverage is nearly universal (93%), and most communities (88%) have access to a school (although 12% still lack access even to this critical service) (Figure 1). In contrast, only about one-quarter (27%) have access to a post office – which is often the only provider of local savings and financial transaction services – and sewerage systems are equally rare (28%). Police stations are another weak link (38%), suggesting that many states still fail to fulfil the fundamental function of providing security and maintaining law and order.

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<sup>2</sup> Census Enumeration Areas, or EAs, are the smallest well-defined geographic unit for which population data are available. In most countries, Afrobarometer conducts eight interviews in each selected EA, which means that 150 EAs are selected for a sample size of 1,200 respondents, or 300 EAs for a sample of 2,400 respondents. In South Africa, four interviews were done per EA, for a total of 600 selected EAs, and in the North African region (Algeria, Egypt, Morocco, Sudan, and Tunisia), 10 interviews were done in each EA, so a total of 120 EAs were selected for sample sizes of 1,200.

**Figure 1: Access to services and facilities**

34 countries | 2011-2013



Interviewers were asked to record whether the following services were present in the EA:<sup>3</sup>

- An electricity grid that most houses could access.
- A piped water system that most houses could access.
- A sewerage system that most houses could access.
- Cell-phone service

And whether the following services were present in the EA or within easy walking distance:

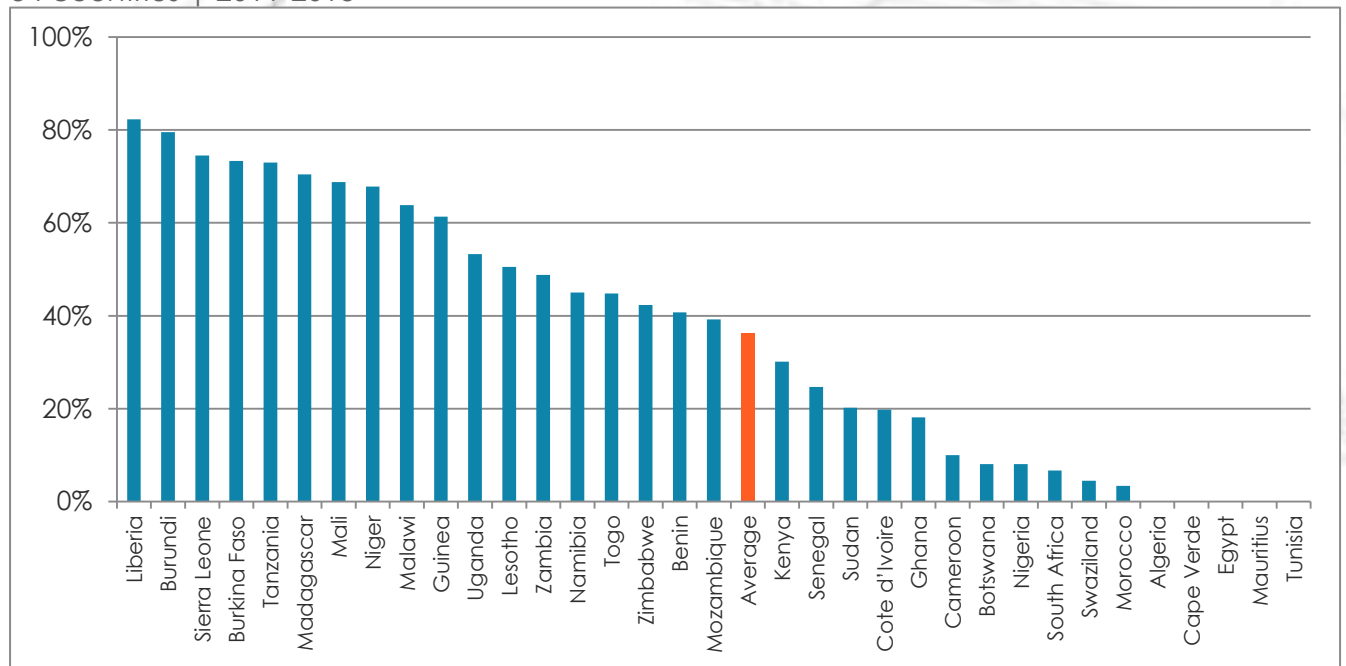
- Post office
- School
- Police station
- Health clinic
- Market stalls

And finally whether the road at the start point in the EA was paved, tarred, or concrete.  
 (% yes)

<sup>3</sup> Note that interviewers were asked to record the *availability* of the service in the community, not whether individual households were actually accessing the services. The proportion of households that currently access these services will therefore be lower in many cases.

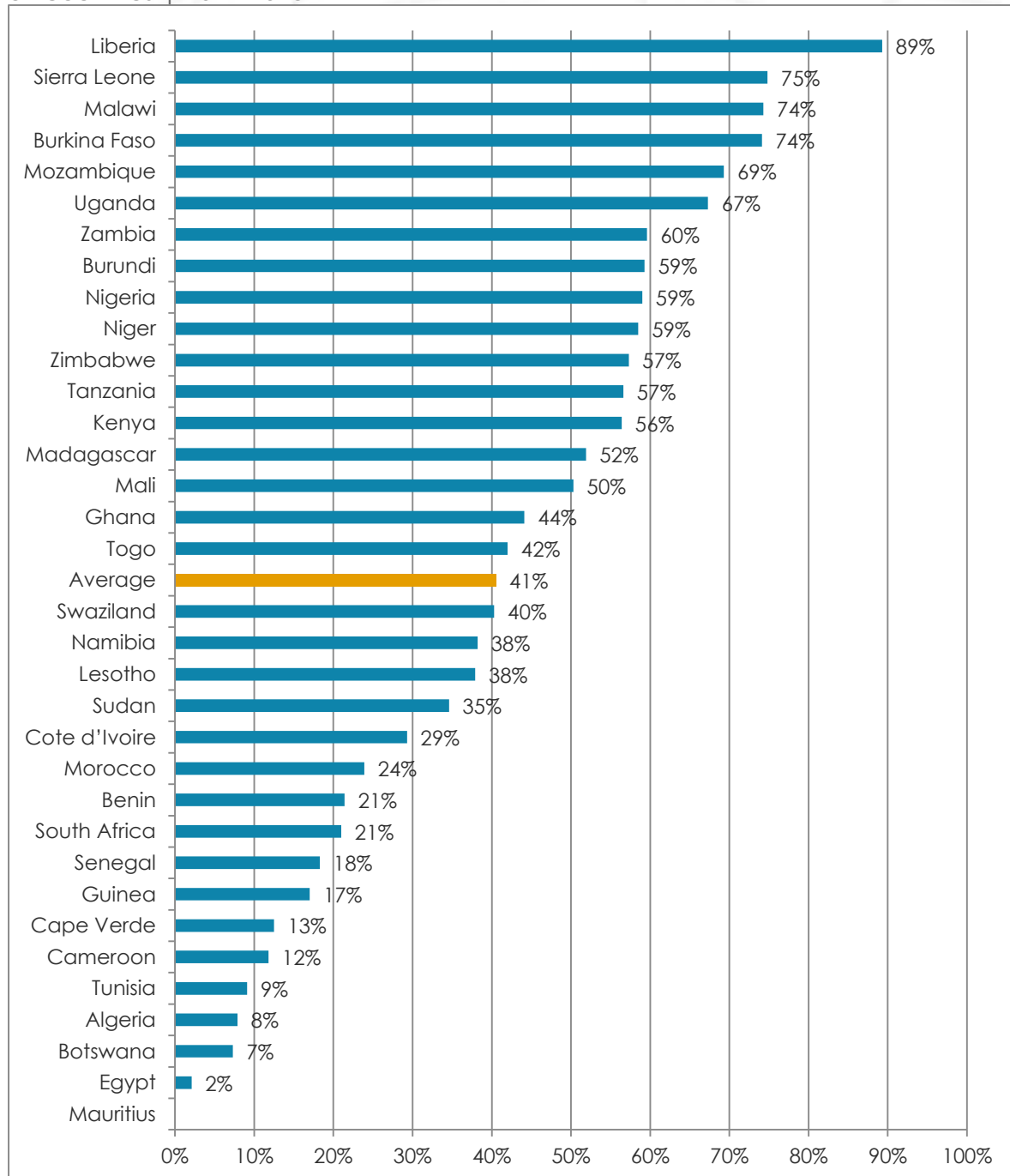
Access to basic services is also highly variable across countries. For example, on average, 38% of all EAs are not on the electric grid. But the figure is more than 50% in 12 of the 34 countries surveyed, led by Liberia, where 82% are off grid, and Burundi (80%) (Figure 2). In contrast, interviewers in five countries – Algeria, Cape Verde, Egypt, Mauritius, and Tunisia – reported that 100% of EAs visited had access to electricity.

**Figure 2: Proportion of enumeration areas with no electric service**  
 34 countries | 2011-2013



Similarly extreme variability is evident with respect to water supply (Figure 3), with Liberia again ranking as the least-served country (89% without).

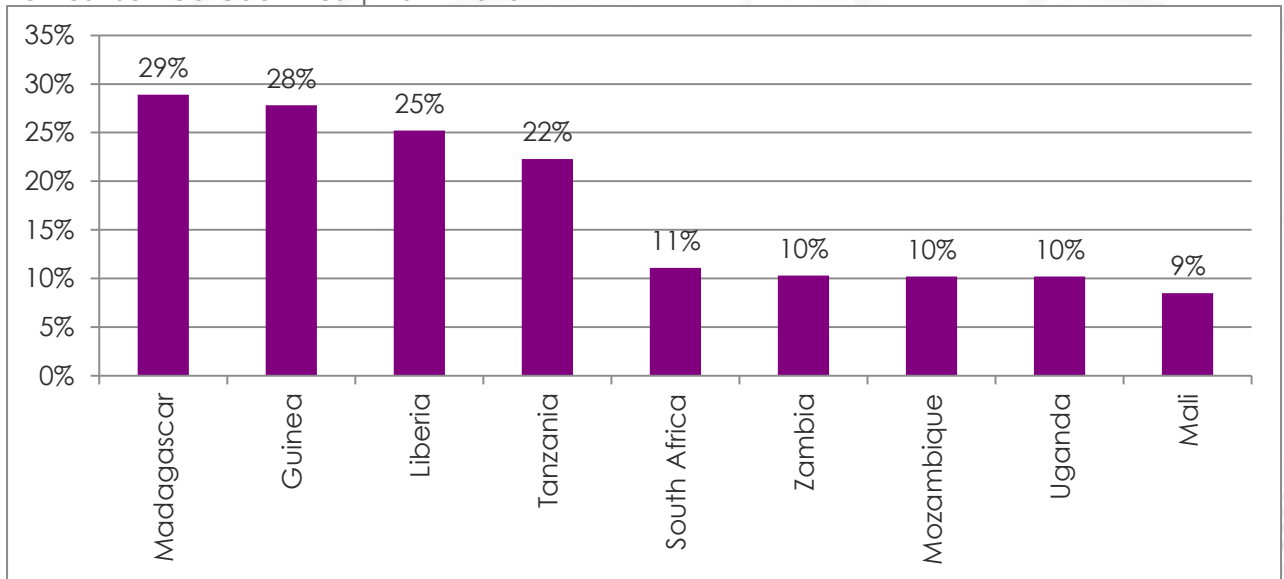
**Figure 3: Proportion of enumeration areas with no piped water supply**  
 34 countries | 2011-2013



Even the overall high levels of access to mobile-phone networks and schools mask significant problems of lack of access in some countries (Figures 4 and 5). One-quarter or more lack cell service in Liberia, Guinea, and Madagascar. And a remarkable one-half of EAs visited in Namibia (51%) did not have ready access to a school in the area.

**Figure 4: Proportion of enumeration areas with no mobile phone service**

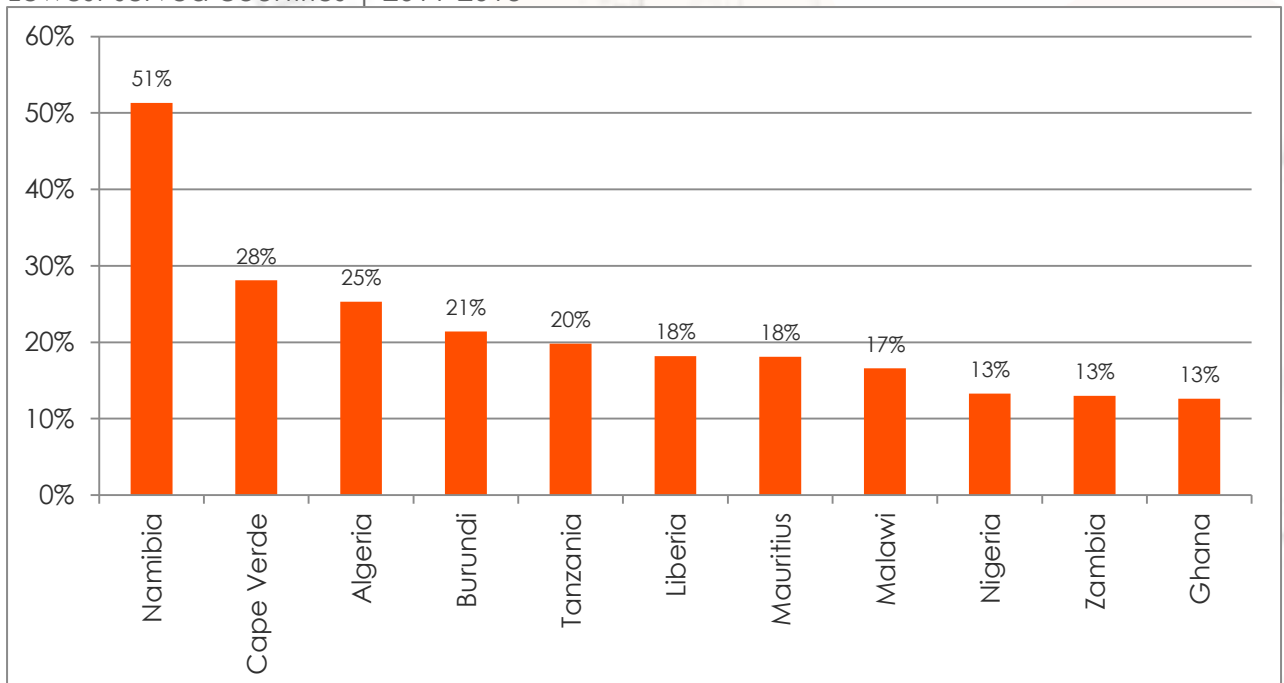
Lowest-served countries | 2011-2013



Note: In all other countries, 7% or less of EAs lacked mobile-phone coverage, including 0% of EAs visited in Botswana, Morocco, and Senegal.

**Figure 5: Proportion of enumeration areas with no school in easy walking distance**

Lowest-served countries | 2011-2013



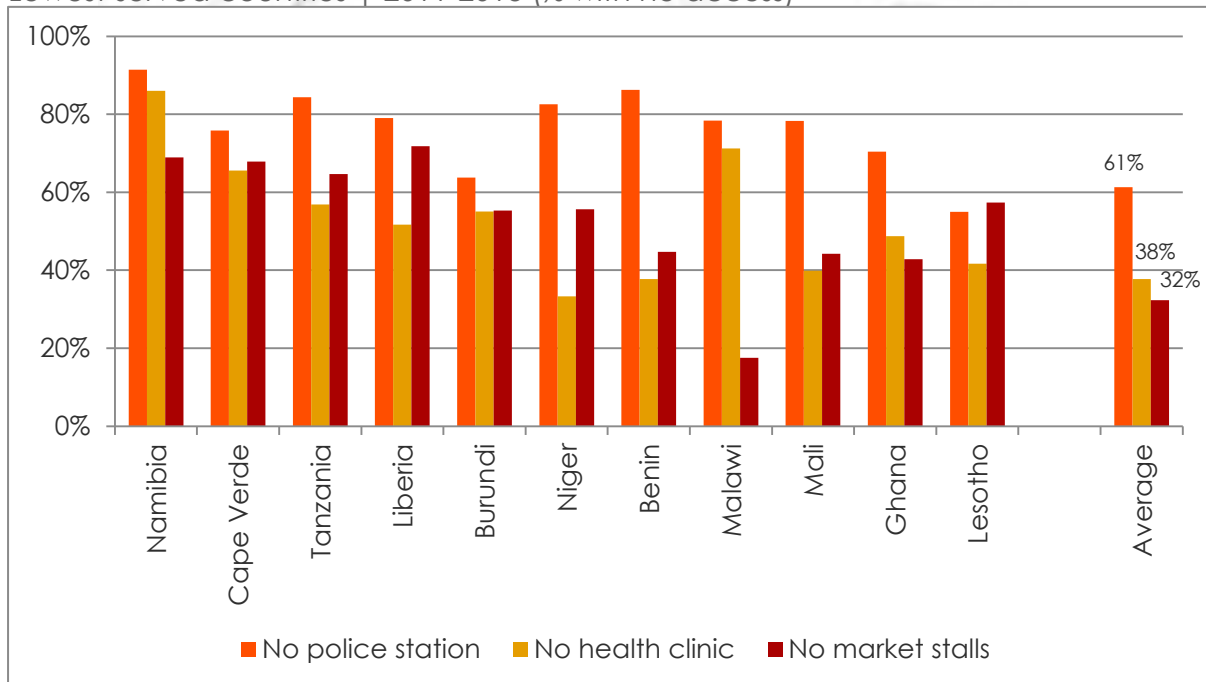
Note: In all other countries, 12% or less of EAs lacked a school within easy walking distance, including just 1% in Burkina Faso and Cameroon.

Namibians' struggles extend well beyond lack of access to schools. Although the country is one of the wealthiest in the region, more than 80% of surveyed communities lack ready access to health clinics and police posts, numbers not matched by any other country (Figure

6). Cape Verde, Tanzania, and Liberia are among other under-performers. By contrast, Egypt, Cameroon, Madagascar, and Morocco have the best levels of access to these services (Figure 7), although lack of access to security services at a police post does not drop below 30% in any country except Morocco (28%).

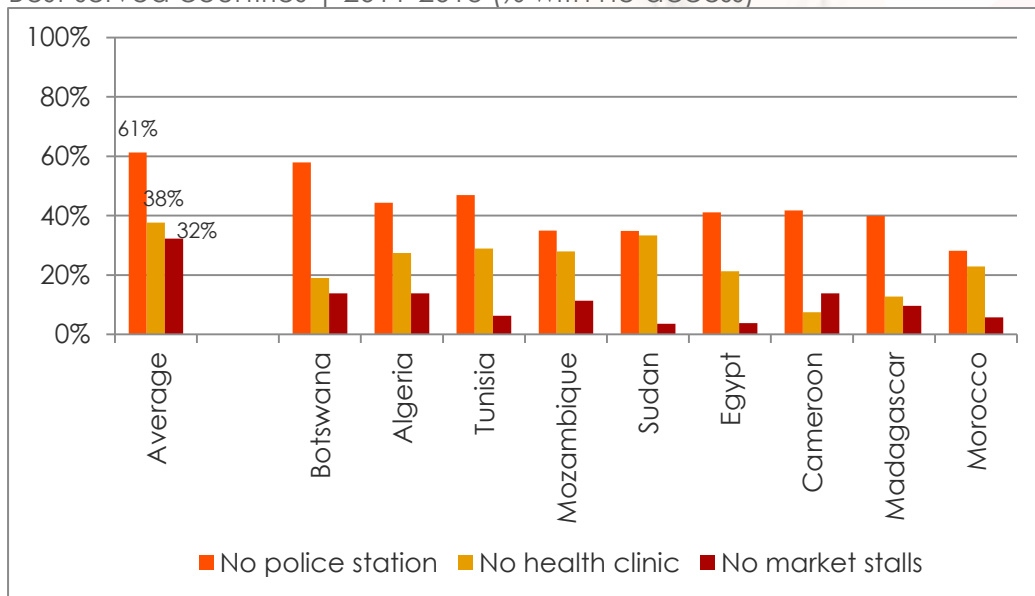
**Figure 6: Lowest average access to police, health, and market facilities**

Lowest-served countries | 2011-2013 (% with no access)



**Figure 7: Highest average access to police, health, and market facilities**

Best-served countries | 2011-2013 (% with no access)



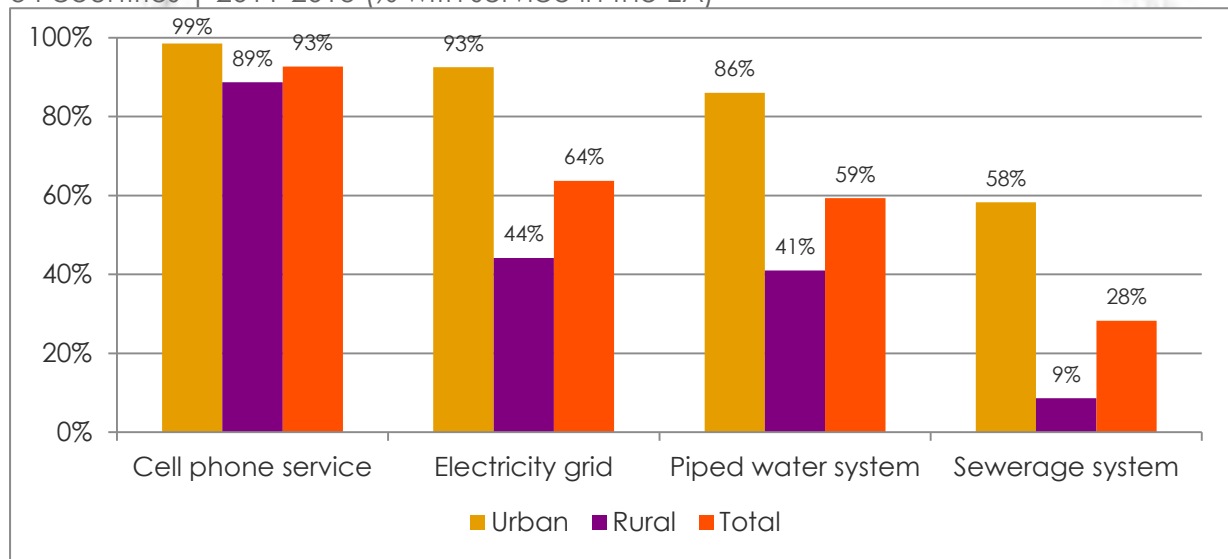
### Sharp urban-rural differences

While rural areas do not lag far behind urban areas when it comes to mobile-phone coverage (89% vs. 99%), differences are stark for other services (Figure 8). Rural areas are less than half as likely as urban areas to have an electric grid or a piped water system, with a gap of nearly 50 percentage points in the level of service provision between the two zones.

Similarly, rural areas have almost as much access to schools as urban counterparts (87% vs. 91%). But the gap widens to 20 percentage points for basic health services (54% in rural, 74% in urban), 38 points for access to police stations, and 44 points for access to paved roads.

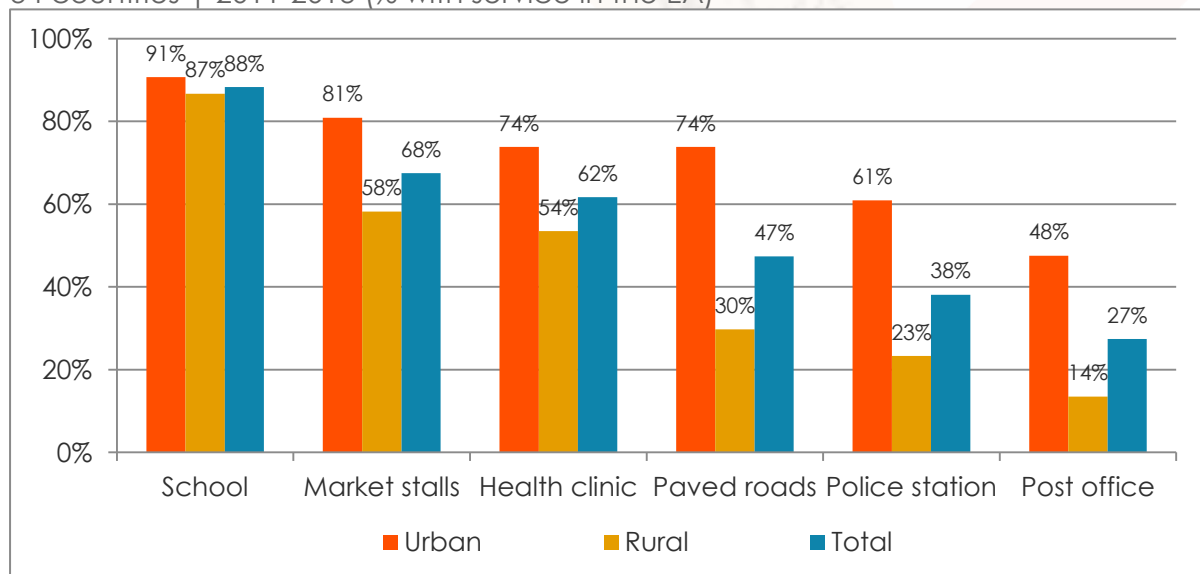
**Figure 8: Urban-rural differences in access to services**

34 countries | 2011-2013 (% with service in the EA)



**Figure 9: Urban-rural differences in access to facilities**

34 countries | 2011-2013 (% with service in the EA)



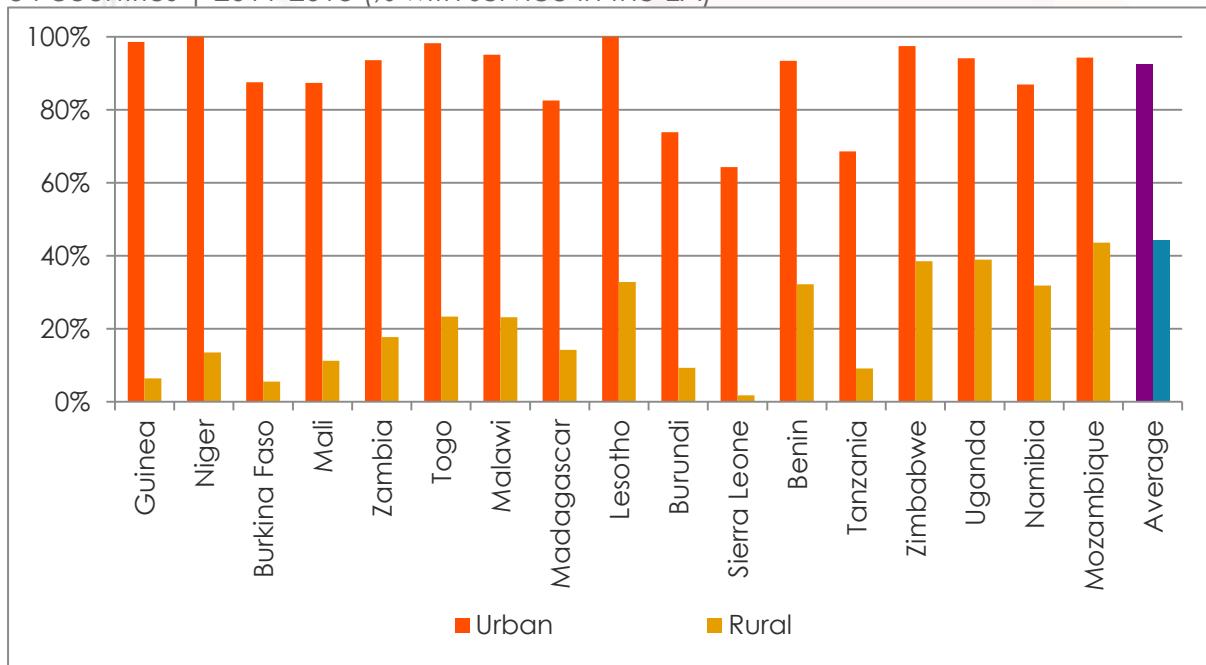
These averages mask far wider urban-rural discrepancies in some countries. For example, while the average urban-rural gap in access to electricity is 44 percentage points, the gap in



Guinea extends to 92 points: Nearly every urban Guinean (99%) has access to an electric grid, compared to a mere 6% of their rural counterparts (Figure 10). The gap is nearly as wide in Niger (87 points) and Burkina Faso (82 points). In contrast, five countries – Algeria, Cape Verde, Egypt, Mauritius, and Tunisia – reported 100% access to electricity in both rural and urban areas.

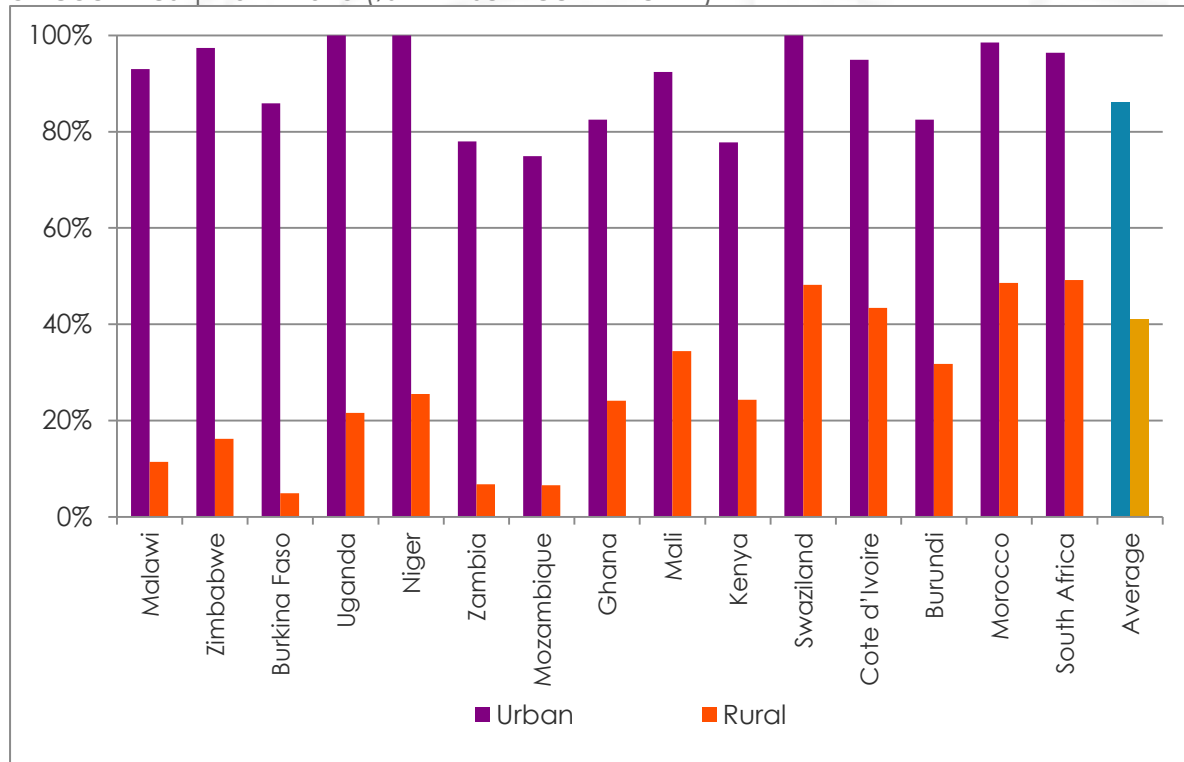
Similar patterns are evident for piped water supply (Figure 11) and health clinics (Figure 12). Many countries, even some of the most impoverished, such as Niger and Malawi, have succeeded in making piped water available for all or most urban citizens, but rural areas languish far behind. And while there is considerably greater equity in the distribution of access to health services, even in a relatively better-off country such as Morocco, where presence of clinics was reported in 95% of urban EAs, just 42% of sampled rural EAs have adequate access to a clinic.

**Figure 10: Widest urban-rural differences in access to electricity**  
 34 countries | 2011-2013 (% with service in the EA)



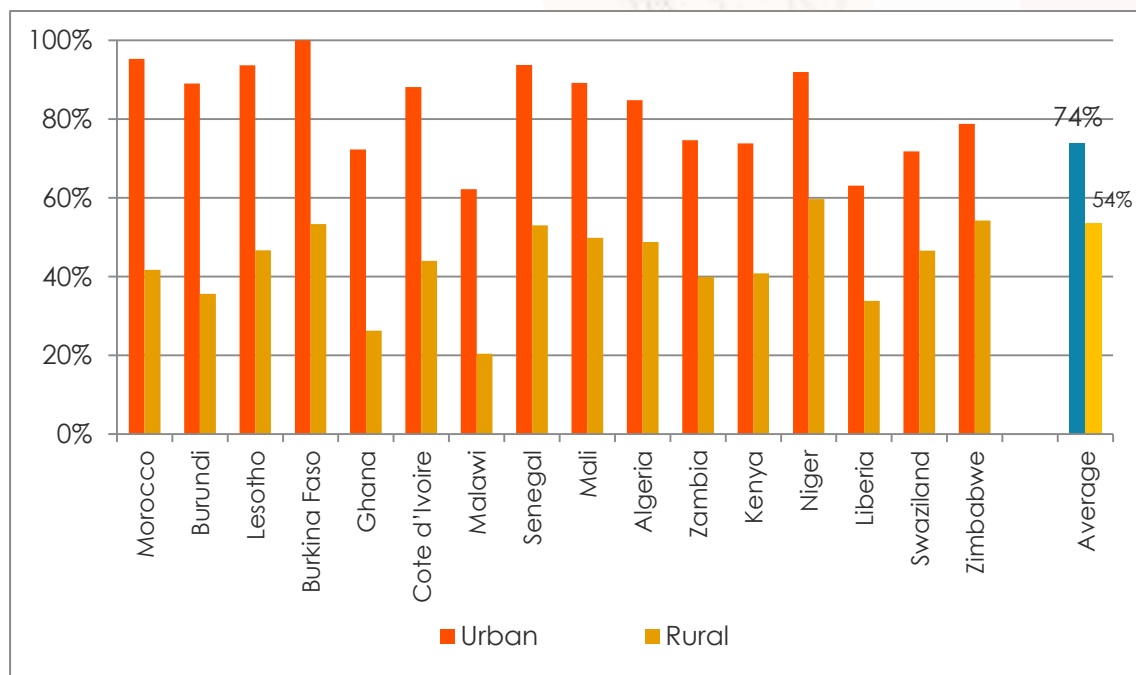
**Figure 11: Widest urban-rural differences in access to piped water**

34 countries | 2011-2013 (% with service in the EA)



**Figure 12: Widest urban-rural differences in access to health clinics**

34 countries | 2011-2013 (% with service in the EA)



## Gaining ground

While these numbers highlight the enormous needs still confronting much of the continent for a basic infrastructure of development services, it is also important to note the progress that has been made in some sectors. Across 15 countries tracked since 2002-2003 (Afrobarometer Round 2), for example, there has been a 15 percentage point gain in reported levels of access to an electric grid. Almost all countries have gained ground, some of them quite substantially. In West Africa, Cape Verde (25 points), Nigeria (23 points), Ghana (22 points), and Benin (21 points) all gained significantly (Figure 13).

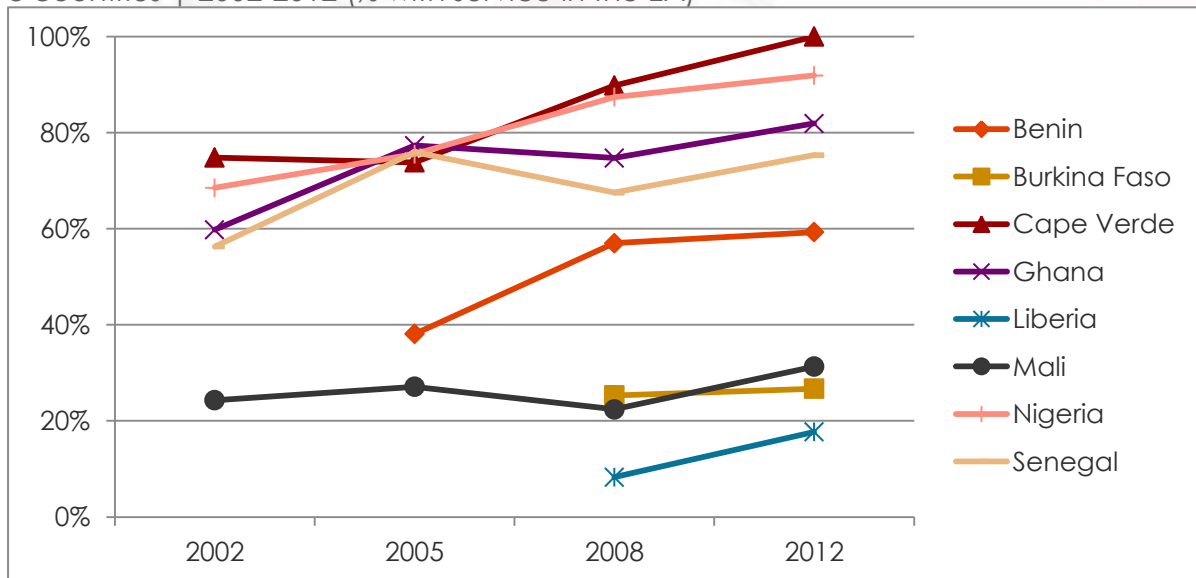
The gains in southern Africa are more mixed. Mozambique has enjoyed an impressive 30 point gain, and Lesotho has achieved 23 points, but others progressed more slowly, and Madagascar has apparently seen a reported 11 point loss of access (Figure 14).

East Africa reveals the greatest contrasts. While, on average, localities in Kenya have witnessed an impressive 30 point gain in the availability of an electric grid, the record is more mixed in Uganda, and the pattern in Tanzania shows a steep decline, with a reported loss of 18 percentage points in access.

The pattern is similar with regard to access to clinics. Across 15 countries tracked since 2002, there has been a 10 point gain in access to clinics, from 45% to 55%, although individual country patterns are much more mixed (not shown).<sup>4</sup>

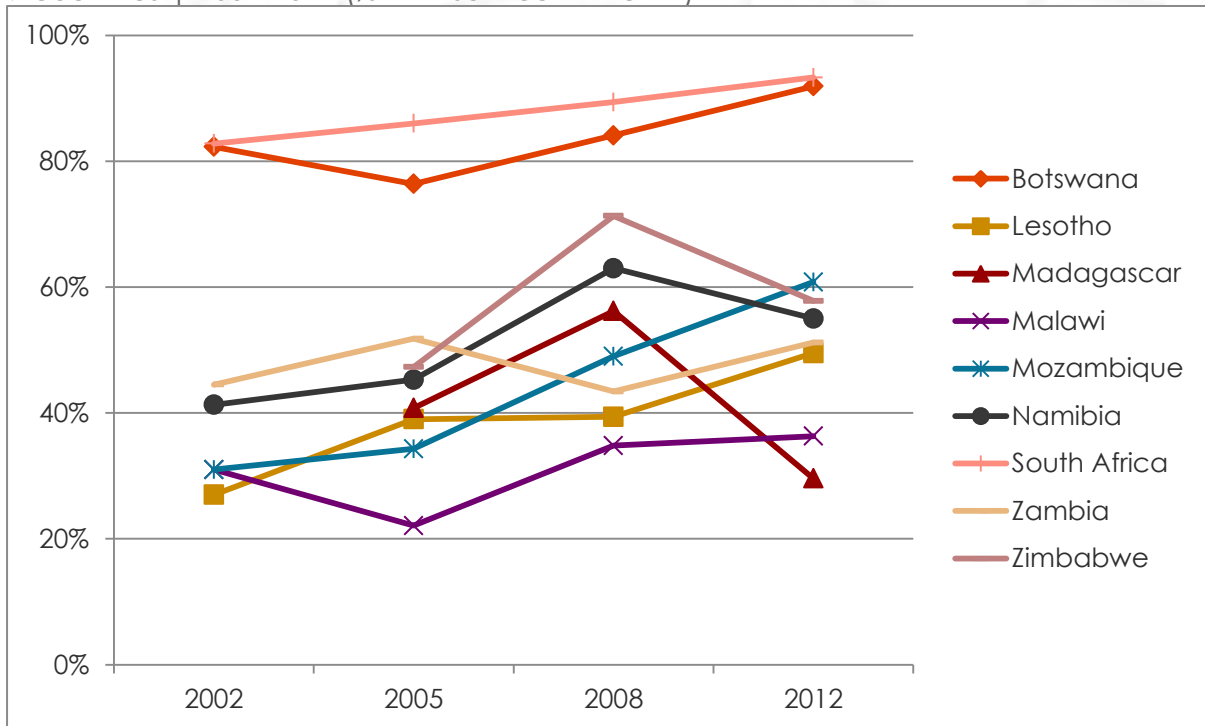
**Figure 13: Changes in access to electricity in West Africa**

8 countries | 2002-2012 (% with service in the EA)

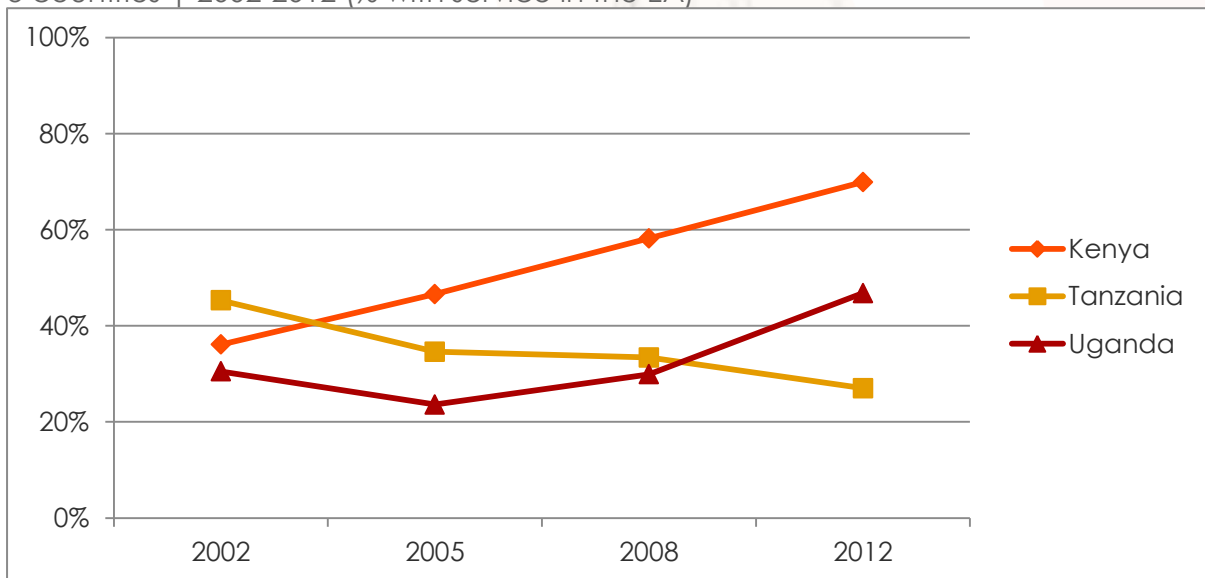


<sup>4</sup> For an in-depth assessment of Afrobarometer Round 4 (2008-2009) findings on access to infrastructure and services, see Robert Mattes, 2010, "What can the Afrobarometer tell us about service delivery in Africa?" Afrobarometer Briefing Paper No. 92, available at [http://www.afrobarometer.org/files/documents/briefing\\_papers/AfrobriefNo92.pdf](http://www.afrobarometer.org/files/documents/briefing_papers/AfrobriefNo92.pdf)

**Figure 14: Changes in access to electricity in southern Africa**  
 9 countries | 2002-2012 (% with service in the EA)



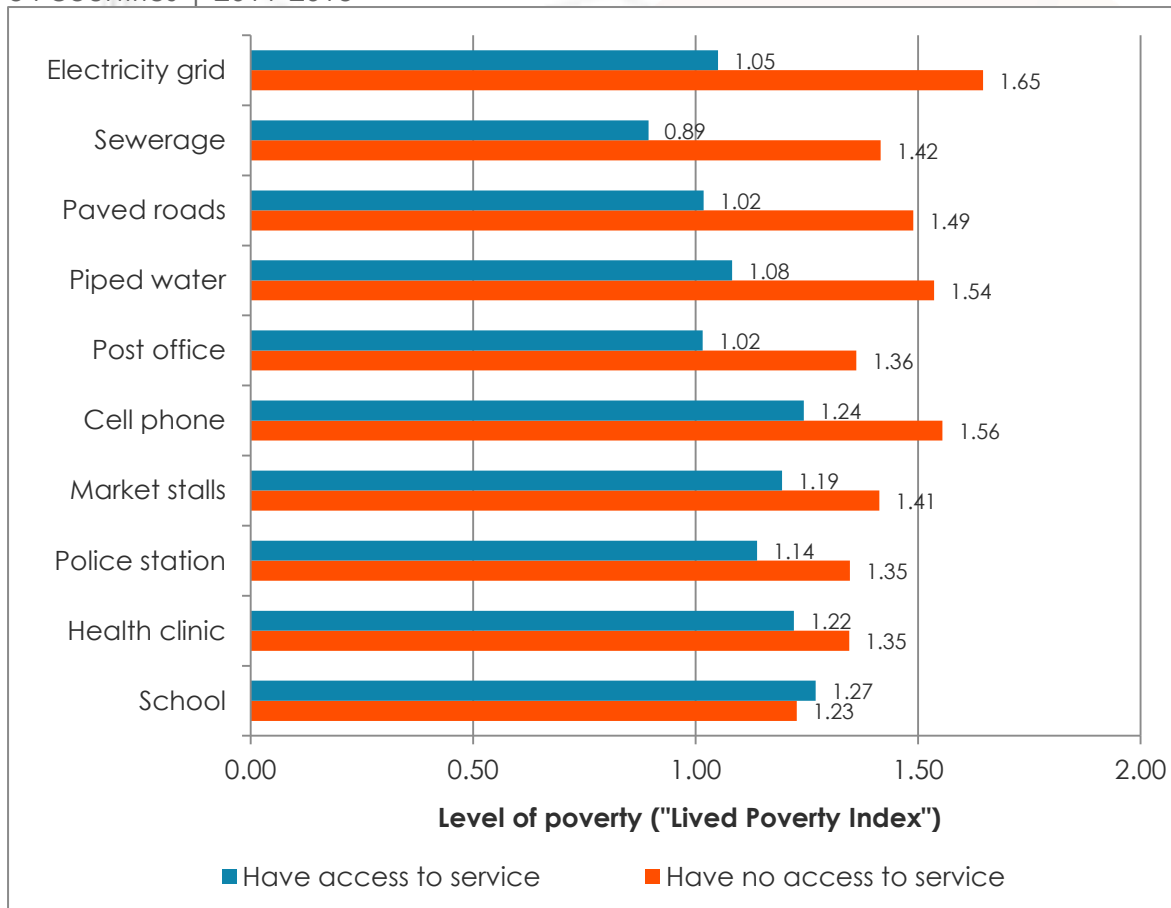
**Figure 15: Changes in access to electricity in East Africa**  
 3 countries | 2002-2012 (% with service in the EA)



### Why infrastructure matters

Previous Afrobarometer reports have noted a strong link between individuals' poverty scores – measured using Afrobarometer's Lived Poverty Index -- and whether or not individuals have access to key services in their communities.<sup>5</sup> For example, in EAs with access to an electricity grid, the average poverty score – calculated as an average measure of how often respondents had gone without food, clean water, medical care, cooking fuel, and cash income in the previous year<sup>6</sup> -- is 1.05, but in EAs without access, the average poverty score is much higher at 1.65 (Figure 16).<sup>7</sup> Similarly, the poverty score is 1.08 where piped water services are available, compared to 1.54 where they are not.<sup>8</sup> While this association is not proof that better infrastructure causes reductions in poverty, these correlations strongly suggest that the absence of key service infrastructure is related to the extent and severity of poverty.

**Figure 16: Access to services and the experience of poverty**  
 34 countries | 2011-2013



<sup>5</sup> See Robert Mattes, Boniface Dulani, and Carolyn Logan, 2013, "After a decade of growth in Africa, little change in poverty at the grassroots." Afrobarometer Policy Paper No. 1, available at <http://www.afrobarometer.org/publications/policy-papers?start=25>

<sup>6</sup> The Lived Poverty Index can range from 0, equating to never having gone without any of the five items (food, clean water, medical care, cooking fuel, cash income), to 4, equating to always going without all of the items.

<sup>7</sup> Eta = .297, p=.000.

<sup>8</sup> Eta = .230, p=.000

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Afrobarometer is produced collaboratively by social scientists from more than 30 African countries. Coordination is provided by the Center for Democratic Development (CDD) in Ghana, the Institute for Justice and Reconciliation (IJR) in South Africa, the Institute for Development Studies (IDS) at the University of Nairobi in Kenya, and the Institute for Empirical Research in Political Economy (IREEP) in Benin. Michigan State University (MSU) and the University of Cape Town (UCT) provide technical support to the network.

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For more information, please visit [www.afrobarometer.org](http://www.afrobarometer.org).

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