

# DIGITAL SOLUTIONS TO IMPROVE BASIC SERVICE PROVISION TO THE URBAN POOR

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Africa's urban population is expected to double from now until 2050, while most of this growth will be concentrated in informal settlements, where over 63 per cent of the urban population in least-developed countries already live. This poses challenges to basic service provision as cities struggle to meet the demands of rapidly growing urban populations. Unless city authorities and utilities find innovative ways to include informal settlements in service provision, water shortages, lack of sanitation, unreliable power and insufficient waste management will remain a reality for most of the urban poor. As COVID-19 demonstrates, the reliability and inclusivity of basic services is a critical determinant of societies' resilience in the face of external shocks.

Mobile-enabled digital solutions are uniquely placed to address these challenges. The expansion of mobile connectivity in developing countries has enabled the proliferation of digital solutions that can make essential services more accessible and affordable. For instance, the spread of mobile money throughout Africa, is enabling innovative business models like pay-as-you-go (PAYG) to make vital services accessible to low-income populations.

Innovations like smart metering, PAYG, big data, GIS and the Internet of Things (IoT) can be applied to a range of impactful use cases, such as deploying smart grids, coordinating sanitation services, monitoring water pipe leakages, mitigating peak traffic flow or managing waste flows.

This section explores the potential for these mobile-enabled innovations to provide solutions to pressing challenges facing the urban poor.

## INTRODUCTION

The pace of urbanisation in Africa is unprecedented. Lagos' population will grow by the entire population of Rotterdam (600,000) every year from now until 2030, while Kinshasa's population is likely to almost double in the next 15 years. Africapolis, a geospatial database on cities and urbanisation dynamics in Africa developed by the OECD, projects that by 2050, Africa's cities will be home to an additional 1 billion people<sup>1</sup>. This growth will not only take place in well-known metropolis such as Lagos or Kinshasa, but also lesser known cities such as Onitsha and Mbuyi-Mayi, which are among the 30 fastest growing cities in the world<sup>2</sup>.

Yet, urbanisation in Africa is generally not associated with structural transformation. Compounding this, informal settlements, where according to the World Bank 63 per cent of the urban population in least-developed countries already live, will likely absorb the bulk of urban population growth. For city authorities, and utilities struggling to meet the demands of rapidly growing populations, this poses unique challenges.

<sup>1</sup> OECD (2020), Africapolis

<sup>2</sup> GSMA (2020), Digital Solutions for the Urban Poor

Urbanisation without structural transformation has important implications for a city's built environment and its ability to provide basic services to its population. Since the urban poor cannot afford to live in well-connected neighbourhoods with high-rise apartments, many African cities are characterised by low-rise informal housing and urban sprawl. For city authorities and state-owned utilities providing basic public services, urban sprawl poses unique challenges. Under intense financial stress, many cities are struggling to address an affordability-coverage gap. Most have to juggle demonstrating their financial viability to the central government or investors with mobilising substantial investments to extend and improve basic service provision to the urban poor.

The financing challenge that cities face is often compounded by precarious property rights, regulatory ambiguity and unplanned and informal housing that define many informal urban settlements. The capital expenditure required to provide basic infrastructure, such as water pipes or sewer networks, is significantly greater in the context of informal settlements<sup>3</sup>. The result is often highly disproportionate distribution of basic services between richer neighbourhoods and poorer informal settlements, with preference given to the socio-economic core. This has had profound implications for development:

- In 11 out of 39 Sub-Saharan African countries, access to at least basic water services for the urban poor (i.e. the bottom 20 per cent in the income distribution) has actually decreased. The impact is evident in Lagos, Nigeria, for example, where the private water tanker has quadrupled over the last decade.
- In cities throughout Nigeria, at least 22 million small gasoline generators are being used on a daily basis to power households and small businesses that can't rely on the national grid for power<sup>4</sup>.
- Between 2000 and 2015, in most African countries, growth in sewer access did not keep up with urban population growth. In Malawi, only 21 per cent of the urban poor (bottom 20 per cent) have access to at least basic sanitation, while 74 per cent in the top income quintile (top 20 per cent) have access.

Climate change is intensifying these challenges and creating an urgent need for cities to be resilient to sudden shocks, to adapt to rapidly changing circumstances and be responsive to uncertainties, risks and vulnerabilities. Unless city authorities and utilities find innovative ways to include informal settlements in service provision, water shortages, lack of sanitation, unreliable power and insufficient waste management will remain a daily reality for most of the urban poor. For cities in developing countries to become true engines of productivity, both public and private sector stakeholders

must address the challenges of the urban poor and ensure that cities work for all.

The GSMA representing mobile operators worldwide, and its Mobile for Development team, which drives innovation in digital technology to reduce inequalities, are committed to helping governments, city authorities, and innovators address these challenges in order to contribute to more inclusive urban futures across Africa.

## HOW DIGITAL SOLUTIONS CAN IMPROVE URBAN SERVICE DELIVERY

The expansion of mobile connectivity and mobile-enabled innovations throughout developing countries has enabled the proliferation of digital solutions that are making vital basic services, such as energy, water, sanitation, and waste management, more efficient, accessible and affordable. In Sub-Saharan Africa, the total number of unique mobile connections exceeds 456 million<sup>5</sup>, and is projected to grow to 623 million by 2025.

The spread of mobile money throughout Sub-Saharan Africa, has been a key enabler of digital payments and financial inclusion. As of 2019, there were over 181 million active mobile money accounts making transactions worth USD 456.3bn a year<sup>6</sup>. Mobile money has been vital to digital innovations across Africa and

Asia and allowed many organisations, startups in particular, to develop solutions tailored to the realities of consumers living in these parts of the world.

According to the 2019 GSMA Mobile Internet Connectivity Report, urban populations in low- and middle-income countries (LMICs) are 40 per cent more likely than their rural counterparts to use mobile internet. This is driven in part by smartphones becoming more affordable, particularly in Sub-Saharan Africa, and rising digital literacy, particularly in urban areas. Between 2014 and 2018, the penetration of smartphone connections in Sub-Saharan Africa increased from 10 per cent to 30 per cent, as several Asian hardware makers tailored their product offerings to this vast underserved consumer market. The number of smartphone connections in the region reached 302 million in 2018; this will rise to nearly 700 million by 2025, an adoption rate of 66 per cent<sup>7</sup>. As smartphone penetration continues to accelerate, a growing number of people will be able to take advantage of more sophisticated digital use cases.

GSMA identifies five technological innovations in different sectors that can scale and reduce operational expenses of vital service provision, while also reaching low-income communities (Figure 1). Digital solutions, such as PAYG, GIS

*Unless city authorities and utilities find innovative ways to include informal settlements in service provision, water shortages, lack of sanitation, unreliable power and insufficient waste management will remain a daily reality for most of the urban poor*

3 Collier and Venables, Urban infrastructure for development (2016)

4 Access to Energy Institute and Dalberg (2019), Putting an End to Nigeria's Generator Crisis: The Path Forward.

5 GSMA (2019), GSMA Mobile Economy Report Sub-Saharan Africa

6 GSMA (2019), State of the Industry Report on Mobile Money.

7 GSMA (2019), State Of Mobile Internet Connectivity Report.



Coliba, a waste management company to ease recycling - @GSMA

tracking, smart metering, big data analytics and IoT platforms, offer new opportunities to tackle complex challenges. They can support tailored, cost-effective solutions, that bring

operational efficiencies, expand services to the poor, and bring transparency and coordination across a range of public, private, and civic stakeholders.

Figure 1: How digital solutions support inclusive urban service delivery

Solution	Relevance	Use cases
<b>Pay-as-you-go</b>	More affordable services for poor consumers because they can make micropayments; service providers improve revenue collection in informal settlements	On- and off-grid energy, water, sanitation, and clean cooking services; 4.2 million solar home systems were sold on a PAYG basis in the last two years alone <sup>8</sup>
<b>GIS tracking</b>	Many cities lack granular data on the delivery of basic services, which often relies on the coordination of multiple stakeholders across complex value chains	Facilitating safe transport and disposal of fecal sludge; geolocating sanitation facilities and customers and site planning for expanding system capacity
<b>Smart metering</b>	Automatic meter reading records consumption and key operational data	Smart meters for energy and water services to give accurate real-time information to service providers and customers
<b>IoT/M2M connectivity</b>	Smart monitoring of systems, which can increase operational efficiency	Water point monitoring to assure functionality; smart grids to reduce technical and commercial losses
<b>Big data</b>	Large data sets enable better understanding of the daily activities of the urban poor, which can facilitate evidence-based policymaking, inform entrepreneurs and unlock private investment	Peak traffic management; forecasting for disaster resilience, and urban expansion

Source : GSMA

8 GOGLA (2020)

## TACKLING CHALLENGES WITH TECHNOLOGY: HOW INNOVATORS ARE IMPROVING CONDITIONS FOR THE URBAN POOR

Through its Mobile for Development Utilities and Ecosystem Accelerator Innovation Fund, GSMA provides grant funding to different mobile-enabled innovations to make basic services more affordable and more reliable to the urban poor.

Focusing on access to energy and clean cooking, water, sanitation, and waste-management, these five case studies highlight the potential of mobile-enabled innovations to improve basic service provision in the context of rapid urbanisation:

### CIRCLE GAS – PAY-AS-YOU-GO CLEAN COOKING IN DAR ES SALAAM AND NAIROBI



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#### PROBLEM:

Population growth is outpacing the number of people gaining access to clean cooking by four times, with estimates suggesting that 2.2 billion people will still not have access by 2030 if current trends continue. The Clean Cooking Alliance estimates \$4 billion is required annually to ensure universal access to cleaner cooking options, such as electric, ethanol, biomass pellet stoves or liquefied petroleum gas (LPG) by 2030. Household pollution generated from diesel generators, as well as polluting cooking materials like charcoal, are major causes of death and have profoundly adverse implications for long-term health outcomes and economic growth. In Tanzania, over 90 per cent<sup>9</sup> of the country's 57 million people use solid fuels, such as charcoal and wood, as their main source of energy for cooking. This has detrimental effects on the safety and respiratory health of families and the country's environment.

#### SOLUTION:

Circle Gas, recently acquired KOPAGAS' technology that provides PAYG clean cooking solutions for families in the last mile in developing countries. KOPAGAS began their business through collaboration with Oryx Tanzania, and mobile operators Vodacom and Airtel Tanzania, by offering a cost-effective meter and Pay-As-You-Cook™ gas service, allowing

users to track their consumption and make mobile payments in small instalments through their mobile money accounts. The solution incorporates IoT and M2M appliances to collect usage data and relay information to users, such as reminders to charge the smart meter battery or alerts that the cylinder is empty and in need of replacement.

In Tanzania, 32 per cent of Circle Gas' customer base lives below the relative poverty line of \$3.10/day, with most not making more than \$5.50/day. The vast majority of its customers are female. As of August 2019, the appliances and PAYG service have reached over 117,000 people and 3,500 households across Tanzania. The upfront LPG cooking kit fee of \$6.50 and an average cost of \$0.45 per day provides an affordable alternative to traditional and expensive LPG canisters that typically require an upfront investment of \$60–100<sup>10</sup>. PAYG is making clean cooking via LPG attainable for Dar es Salaam's urban poor. 61 per cent of Circle Gas' customers said their monthly spending on fuel has "slightly" or "very much" decreased since using the service.

#### LOOKING AHEAD:

In January 2020, Circle Gas Limited acquired KOPAGAS in a transaction worth USD 25 million. The acquisition, thought to be the largest ever pure private equity investments in the clean cooking technology sector, will accelerate the scale-up of smart metered LPG, expanding the existing business in Tanzania and Kenya in 2020. Safaricom, Kenya's largest mobile operator, is also an investor in Circle Gas and has an operating agreement with the Circle Gas Kenyan subsidiary M-GAS, which will run the PAYG LPG business in Nairobi, Kenya. The M-Gas solution will run on Safaricom's Narrow Band Internet of Things (NB- IoT) network that provides low-power mobile connectivity, as well as leverage the operator's mobile money service, marketing, and customer service. This is the first time a mobile operator has invested in clean cooking solutions, recognising the commercial opportunity of mobile enabled utility services.

<sup>9</sup> WHO, (2018)

<sup>10</sup> GSMA (2018), KopaGas: Mobile-enabled Pay-as-you-Cook service in Tanzania.

## LUMOS – PAY-AS-YOU-GO SOLAR HOME SYSTEMS IN NIGERIA'S CITIES



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### PROBLEM:

Several African cities still have a wide energy access gap. At least 110 million of the 600 million people without access to electricity in Africa today live in urban areas<sup>11</sup>. Estimates for the proportion of 'under-the-grid' populations, communities living near existing power lines or even directly under the transmission lines, that do not have access to the national grid range from 61 to 78 per cent. Even when customers have grid connections, they are not necessarily guaranteed consistent energy access. In Nigeria, chronic grid outages have made power unreliable to those connected to the national grid<sup>12</sup>. Blackouts significantly dampen economic growth and private sector development, as businesses must constantly adapt and invest in costly alternative energy sources, such as diesel generators.

Nigeria has the largest urban off-grid market globally, and this has given rise to an unprecedented proliferation of diesel generators. According to a recently released study by the Access to Energy Institute and Dalberg, at least 22 million small gasoline generators are being used to power households and small businesses on a daily basis. Excessive expenditures for back-up electricity (such as diesel generators) prevent small business owners from investing in their businesses by costing them up to 30 per cent of average monthly revenues.

### SOLUTION:

Lumos Global offers a clean, reliable and affordable solar energy solution for people and businesses living off the electricity grid. Its solar home system is an 80W solar panel unit and cable, and includes a control unit with eight sockets, a USB mobile adapter and two LED

bulbs, allowing users to convert solar power into clean electricity. Lumos has rolled out its solution as part of a branding and marketing partnership with MTN Nigeria, allowing it to take advantage of MTN's infrastructure with multiple stores across Nigerian cities, as well as its brand recognition. The solar system is mobile-enabled through the use of airtime credit and GSM-based M2M connectivity, which allows people to purchase the system over time through instalments.

To date, Lumos has over 100,000 customers in Nigeria alone, with 60 per cent of users located in urban or peri-urban areas. The company identified these areas as key drivers of future growth, as it positions its innovative solar home system (SHS) offering as a cleaner and more efficient alternative to widely used diesel generators.

### LOOKING AHEAD:

Lumos was awarded a \$75 million grant by the Nigerian government to support its expansion and provide an affordable and clean solution to the country's chronic energy deficit. Lumos is aiming to sell five million solar home systems in the next three years and plans to expand its service offerings to meet the needs of different markets and the socio-economic status of its users, particularly the urban poor. In the context of COVID-19, Lumos was one of four companies that has been selected to receive a share of the \$500,000 Solar Relief Fund from Nigerian off-grid energy impact investing company All On. This new funding will enable Lumos to leverage its country-wide operations and logistics network to deploy solar home systems critical healthcare and emergency response centres across Nigeria.

<sup>11</sup> Shirley (2018), Millions of urban Africans still don't have electricity: here's what can be done.

<sup>12</sup> Quartz Africa (2018), The cost of electricity shortages in Africa is more than just a problem of access.

## WONDERKID – MOBILE-ENABLED CUSTOMER CARE AND BILLING FOR WATER UTILITIES ACROSS AFRICA

**PROBLEM:** Although the urban poor are more likely to have access to basic or safely managed water than those in rural areas, the growth of informal settlements and the associated spread of untreated wastewater combined with the rise of climate change-associated water scarcity, pose unique challenges for utility service providers to include and serve the urban poor. In Sub-Saharan Africa, just under 25 per cent of urban households have access to piped water<sup>13</sup>. According to the International Water Management Institute, urban water demand will increase by 80 per cent between now and 2050. By then, nearly 5.7 billion people will face water scarcity for at least one month every year<sup>14</sup>.

The National Development Plan of Kenya seeks to make basic water and sanitation available to all by 2030. Currently, just over 59 per cent of Kenyans have access to at least basic water services<sup>15</sup>. Kenyan water utilities lose 30 to 85 per cent of their revenues due to commercial or infrastructure problems.

**SOLUTION:** Wonderkid is a software development consultancy based in Kenya. They develop bespoke solutions for the public and private sector across Africa. They started working in the water sector in 2012 with the launch of MajiVoice, a customer feedback and complaint management system for water utilities and their customers. Wonderkid also developed a mobile app for meter readers that allows meters to be photographed and customer accounts to be digitally updated, helping to address disputes and verify meter readers' activities in real-time. A self-meter reading and payment system also allows users to send their own meter reading via SMS and receive a preliminary bill with instructions for paying via mobile money using Safaricom's M-Pesa. KIWASCO, a water utility that uses the tools, recorded a 28 per cent increase in revenue collected and an 8 per cent increase in revenue billed. The average complaint resolution time dropped from more than 15 days to 6 days. The number of mobile money transactions to pay water bills increased by 71 per cent and there was a 50 per cent increase in the value of transactions.

**LOOKING AHEAD:** As of June 2020, Wonderkid is serving over 32 water utilities across Africa. In the coming years, Wonderkid seeks to diversify its revenue streams by leveraging its experience of working with water utilities. It also aims to pay more attention to the growing concern of water scarcity facing several water utilities in Africa, which makes reducing non-revenue water and improving revenue collection even more important.

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<sup>13</sup> World Bank (2019), Which Way to Livable and Productive Cities.

<sup>14</sup> World Resources Institute (2019), Unaffordable and Undrinkable: Rethinking Urban Water Access in the Global South.

<sup>15</sup> WHO, JMP and UNICEF (2017), JMP.

## KCCA – IMPROVING URBAN SANITATION SERVICES IN KAMPALA THROUGH A GIS-ENABLED APP



Over 5,000 jobs have been reported over the system at KCCA.

@GSMA

### PROBLEM:

According to the JMP (WHO/UNICEF), only 34 per cent of people living in least developed countries have access to at least basic sanitation services. Providing sewer access to informal settlements is proving particularly challenging given that sanitation service provision is often not a political priority and demands a high level of funding, sophisticated planning and engineering.

Sanitation services are under particular pressure in Kampala, with 94 per cent of the city relying on non-sewered sanitation. Often the only alternative, a decentralised system of pit latrines and septic tanks, is used by 70 per cent of the city's population, most of whom live in informal settlements. Without formal collection and treatment services available, these pits and tanks are emptied haphazardly by independent emptiers who may dump the waste illegally into the environment, risking the spread of cholera, typhoid and other water-borne diseases.

### SOLUTION:

The Kampala Capital City Authority (KCCA) is the corporate and governing body of Kampala. In response to the challenge of delivering sanitation services to Kampala's urban poor, KCCA launched a GIS-based mobile app that links pit emptiers with customers. KCCA receives pit emptying jobs from customers through its call centre, connecting customers with the nearest pit emptiers. After completing an emptying job, the pit emptiers submit critical data through the app to KCCA, including customer details, the amount paid, volume emptied and the type and location of the sanitation facility.

The app serves as an 'ecosystem catalyst' by connecting customers with sanitation services and helping to ensure safe faecal sludge disposal for a cleaner and healthier city.

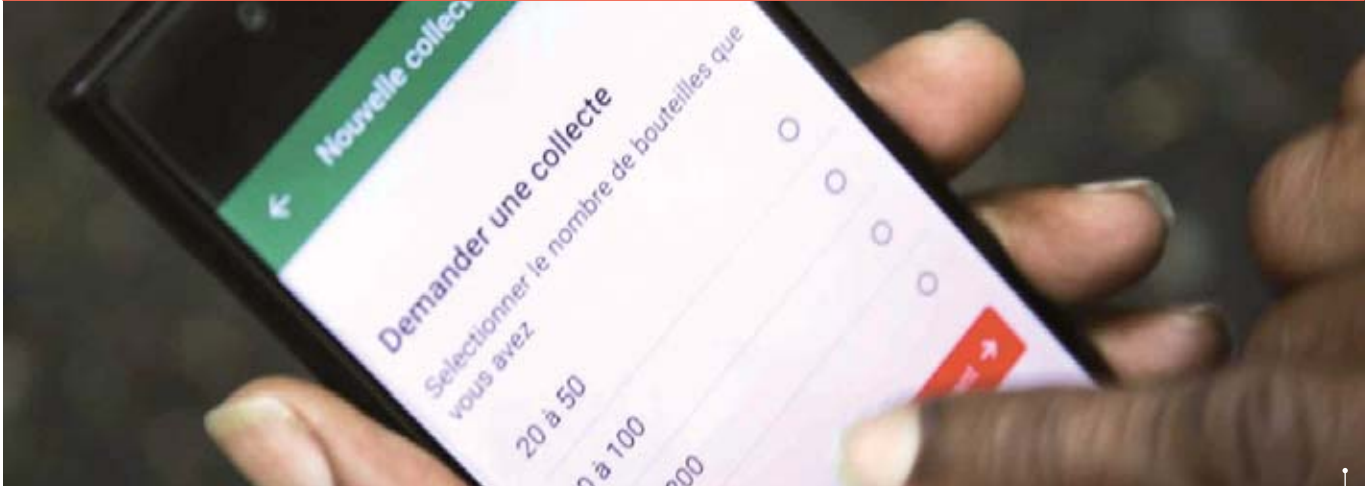
The platform enables KCCA to map sanitation activities across the city, which allows them to monitor and regulate service delivery and identify locations in need of more treatment capacity. KCCA has also worked with MTN Uganda to promote mobile money as a tool for pit emptiers to collect payments from customers and pay dumping fees at the waste treatment facilities.

As of January 2020, the solution has mapped over 171,000 sanitation facilities and facilitated over 5,000 pit-emptying jobs, improving overall sanitation in the city and building the capacity of pit-emptying entrepreneurs. Those using the app reported a 63 per cent increase in income and 71 per cent reported finding the app user friendly. Overall, 85 per cent of pit emptiers reported using the app regularly. Meanwhile, according to surveyed users, the project resulted in an 87 per cent reduction in illicit disposal of faecal sludge in the communities and a 70 per cent perceived reduction in disease outbreaks.

### LOOKING AHEAD:

KCCA is in discussions with other municipalities (such as Mityana, Mbarara, Mukono and Wakiso) in Uganda to scale the service and improve sanitation service delivery in these regions. Their existing solution is also being scaled up to expand on other urban challenges such as solid waste management to improve garbage collection and disposal in Kampala.

## COLIBA – FACILITATING RECYCLING THROUGH MOBILE TECHNOLOGY IN ABIDJAN



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### PROBLEM:

According to the World Bank, 93 per cent of waste in low-income countries is left in open dumps and there are normally no processing facilities. As solid waste treatment usually falls under the authority of local governments, limited financial resources and technical capacity are critical barriers to addressing this critical issue. However, waste generation is positively correlated with economic growth and is projected to grow significantly across developing countries. Excluding India and China, Sub-Saharan Africa will be the largest waste-generating region by 2050.

In Abidjan, over 288 tonnes of plastic waste are produced every day, less than five per cent of which is recycled<sup>16</sup>. Plastic is filling up the streets and waste is blocking drainage and sewerage systems, contributing to ecological degradation and pollution of water reserves. In 2015, the city produced over a million tonnes of waste, none of which was dealt with by collection stations or dismantling or treatment facilities<sup>17</sup>. The unregulated dumping of waste can have a dramatic effect on the health of households in the city. This was witnessed in 2006, when over 100,000 people had to be treated for illness and at least 15 people died following a major dump of waste across the city<sup>18</sup>. Cases such as this highlight the urgent need for action in Abidjan, as the long-term impacts of current practices could be devastating for the health of the population and their surrounding environment.

### SOLUTION:

Coliba is a waste management company that offers off-grid recycling and recovery of plastic waste and transforms it for productive use. The solution consists of regular plastic waste collection by trained and equipped waste pickers employed by Coliba, who transport it to a sorting centre where it is recycled into pellets that can be used in local and international plastic-based industries. The solution also leverages mobile technology with a web, mobile and SMS platform that allows customers to connect with the waste pickers to schedule the collection of plastic, and accumulate points for MTN data or other supported products. In this way, customers are incentivised to recycle.

Coliba provides a formal solution to the plastic waste challenge, promoting sustainable development and creating jobs in the process. As of June 2019, Coliba had more than 4,500 active monthly users recycling up to two tonnes of plastic every day, with a total of 300 tonnes of waste recycled since it launched in 2017. According to One Young World, Coliba is operating 40 recycling centres in Ghana and 16 in Côte d'Ivoire<sup>19</sup>.

### LOOKING AHEAD:

In March of this year Coliba, received an investment from GreenTec Capital Partners, a German investment company. Coliba will use these new funds to develop its plastic waste collection and processing business in Côte d'Ivoire. In collaboration with Voltic Mineral Water, Coliba is planning to build an additional 160 recycling centres in the coming years, expanding their contribution to the circular economy. By 2025, Coliba aims to reach more than two million users.

<sup>16</sup> UNICEF (2019), A Future for Every Child by Beating Plastic Pollution.

<sup>17</sup> Global Recycling (2018), Ivory Coast: Waste Management is Still a Problem Child.

<sup>18</sup> Amnesty International (2018), A Toxic Legacy: The Case for a Medical Study of the Long-Term Health Impacts of the Trafigura Toxic Waste Dumping.

<sup>19</sup> One Young World (2019), Coliba



## CONCLUSION

Cities are growing rapidly across Sub-Saharan Africa, but contrary to past urbanisation trajectories in other regions, the expansion of cities is rarely accompanied by structural transformation. As a result of the lack of manufacturing and other job opportunities, a lot of urban growth is absorbed by informal settlements, where the majority of the urban population in Sub-Saharan Africa lives. As a consequence, many municipalities and city authorities are struggling to provide access to affordable and reliable basic services – a key prerequisite to ensuring greater social mobility. The emergence of COVID-19 has exacerbated these challenges, hindering daily economic activities of individuals working in the expansive informal sector and increasing the health risk for urban dwellers, who often lack critical basic services such as water or sanitation.

Making cities work for the urban poor, and ensuring that rapid urbanisation results in wealth creation and economic development, will be the most important challenge facing developing countries in the coming decades. With two-thirds of urban infrastructure investments from now until 2050 yet to be realised, there is tremendous scope to shape the trajectory of urbanisation, particularly in secondary cities, many of which will be transforming into booming urban agglomerations in the coming years.

The rise of mobile connectivity has not only introduced new data sources for evidence-based policymaking, which can reach marginalised communities such as the urban poor, but has also enabled the proliferation of market-creating innovations that make products and services more accessible to the urban poor.

Of course, no progress can be made without government and an appropriate amount of public funding, particularly with utility service provision. African governments (at both the city and federal level) will have to significantly increase

investments to ensure that cities become more inclusive and sustainable. Without public sector commitment and political leadership, such transformative change is simply unimaginable.

Given the vast sums that must be mobilised in the context of rapid population growth, climate change and economic inequality, African states and municipalities that are struggling to increase their tax bases and mobilise domestic resources will not be able to meet the challenge alone. It will be key for innovators throughout the developing world, underpinned by private investment and donors, to complement public sector activities and collaborate with city authorities and governments to address the challenges facing the urban poor.

*Mobile technology can be a key enabler of multi-stakeholder coordination across service delivery value chains, which provides transparency and accountability*

Here, mobile technology can be a key enabler of multi-stakeholder coordination across service delivery value chains, which provides transparency and accountability. It is critical to think about maximising the development impact of digitisation and technology. While the tech and donor

community rightly emphasise the massive opportunity for developing countries to leapfrog and learn from the mistakes of other countries' development trajectories, there are fundamental services that cannot be leapfrogged. Access to safely managed water and sanitation, reliable power supply, and proper waste management, are critical for economic development and social equality.

The challenge for cities and innovators is to direct the transformative power of mobile-enabled digital solutions towards urban development challenges, which will reap immense social returns. The GSMA Mobile for Development Utilities programme is committed to supporting innovative partnerships between municipalities, innovators and mobile operators, while also helping to scale innovative digital solutions for the urban poor.