



The growing urban crisis in Africa

Water Supply, Sanitation and Demographic Challenges –
the Kenyan Case



BMZ



On behalf of
Federal Ministry
for Economic Cooperation
and Development



Published by:
Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

Registered offices
Bonn and Eschborn, Germany
T +49 228 44 60-0 (Bonn)
T +49 61 96 79-0 (Eschborn)

Water Sector Reform Programme (WSRP)
Ministry of Water and Irrigation
4th Floor, room 431
Maji House, Ngong Road
Nairobi, Kenya
T +254 202719987
E info@giz.de
I www.giz.de

E info@giz.de
I www.giz.de

Responsible:
Roland Werchota (WSRP, Kenya)

Author:
Roland Werchota (WSRP, Kenya)

Co-Author:
Dr. Hans-Heiner Rudolph and Nadine Schniederjohann
(Section 'New socio-political perspectives', Sector 'Demography and development', Eschborn)
with contributions by Dörte Ziegler

Editing:
Sarah Neumann and Dr. Hans-Heiner Rudolph

Photos credits:
Title and all other photos: Water Services Trust Fund, AquaPix 1.0 and 2.0

Maps:
The geographical maps are for information purposes only and do not constitute recognition under international law of boundaries and territories. GIZ does not guarantee in any way the current status, accuracy or completeness of the maps. All liability for any loss or damage arising directly or indirectly from their use is excluded.

Layout:
Nikolai Krasomil, www.design-werk.com, Wiesbaden/Germany

Printed and distributed by:
Metzgerdruck GmbH, Mosbach/Germany

Printed on 100 % recycled paper, certified to FSC standards.

Place and date of publication:
Eschborn, January 2013

As a federally owned enterprise, we support the German Government in achieving its objectives in the field of international cooperation for sustainable development.

The contents of this report reflect the views of the author and do not necessarily reflect the opinions of the BMZ.

Content

- Foreword..... 2
- 1. Recognising the fast-growing urban crisis..... 3
- 2. The slum population is the most vulnerable in the country..... 5
- 3. Basic water supply, sanitation and hygiene is key to national development and demographic opportunities..... 8
- 4. Closing the data and information gap and making the growing crisis more transparent 14
- 5. Informal service provision and the human right to water and sanitation..... 15
- 6. Managing the turn-around for access with improved frameworks... 17
- 7. Up-scaling concepts in the water sector for the urban poor 20
- 8. The particular challenge of up-scaling sanitation for the urban poor..... 22
- 9. Conclusion and messages..... 24
- MajiData – a new database for the urban poor and decision-makers..... 26
- Glossary 29
- References..... 32
- Appendix..... 35

Foreword

This brochure uses Kenya to illustrate the integration of three sectors which, although they urgently need to be bundled in international cooperation, are still too seldom linked conceptually and practically – water, urbanisation and demographics.

The brochure focuses on the dramatic urban crisis in Kenya. The Greater Nairobi area alone currently has 3.9 million inhabitants, and this number will almost double in the next 15 years. Many of Nairobi's inhabitants live in low-income urban settlements, which – whether formal or informal – are increasingly taking on the nature of slums. More than half of the inhabitants already lack access to acceptable drinking water supplies and sanitation, which particularly impacts women and children. This leads to growing vulnerability to water-transmitted diseases, and indirectly contributes to extreme poverty, unacceptable living conditions and a lack of prospects.

One of the greatest challenges in the low-income areas of Nairobi is countering the problems of inadequate water supply and sanitation, which are being exacerbated by rapid urbanisation. The brochure shows the background to these problems, which politicians have neglected for decades, looks beneath the numbers to visualise the frequently invisible interactions and trends, e.g. between migration, poverty, urbanisation, water management, health and education. It becomes clear that access to water and sanitation is a central key to social and economic development. Improvements in the water sector accordingly have a major impact on many other development cooperation sectors and fields of policy. Demographic data and scenarios help decision-makers from the spheres of politics, business and society to prepare now for the challenges and opportunities of the future.

The topic of water and demographics requires greater attention, particularly in Africa. This brochure provides an introduction, with practical recommendations for action, and encourages more intensive involvement in the topic of water and demographics. It includes examples of policy advice and new upscaling approaches to water management in poor urban areas. The sectoral and demographic experience presented, and the analytic and practical approaches and methodology, including online access to important data, are examples of good practice for other countries in Africa, and for the water sector in international cooperation generally.

The expertise of GIZ presented here is directed at not only addressing the demographic challenges together with the partners, but also at utilising the associated opportunities for sustainable development for the countries. The brochure was produced by the BMZ-financed water sector reform programme, with assistance from the GIZ group 'New Socio-political Perspectives', Sector 'Demography and Development' and in collaboration with GIZ water experts. We wish to thank everyone who has contributed to the production of this challenging brochure on a topic of great importance for the future.



Andreas Proksch
Director General,
Africa Department



Stefan Opitz
Director Water, Energy,
Transport



Hendrik Linneweber
Country Director
Kenya

1. Recognising the fast-growing urban crisis

Africa is the continent with the world's fastest rate of urbanisation. High fertility rates and rural-urban migration are leading to an average urban population growth of 5% per year.¹ Between 2011 and 2050, the total urban population is expected to triple from 400 million to 1.2 billion and by 2035, it is expected that over 50% of the population will live in urban areas (see figure 1). In countries such as Zambia, the urban population has already outstripped the rural population. In Kenya, every year some 250,000 people 'are moving to cities and formerly rural areas are becoming increasingly urban' (see figure 2).² The continent's urbanisation is taking place in broad circumstances hitherto unencountered by other regions, such as globalisation, migration and 'depredation of the productive workforce and of family security due to HIV/AIDS'.³

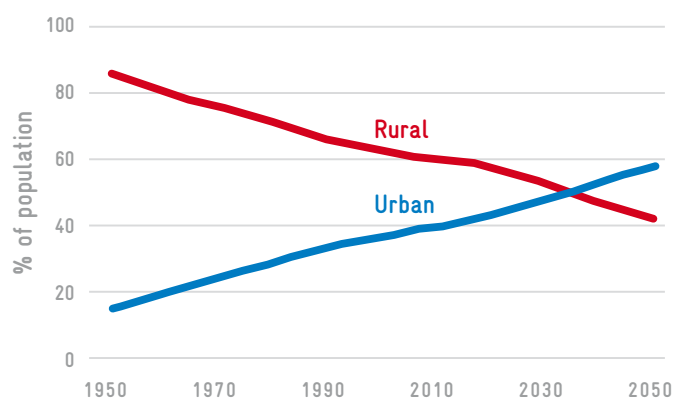
Progress towards national goals depends on access to drinking water and basic sanitation in urban low-income areas

With growing urbanisation the population density in low-income areas is also growing. Not only informal low-income settlements but also many previously planned are now taking on the character of slums, putting more pressure on livelihoods and aggravating the horrible living conditions of the urban poor.⁴

In Kenya, the population in slum areas now exceeds 3.9 million⁵ (5.2 million⁶ including areas with slum pockets) and will almost double to over six million in the next 15 years. (Greater) Nairobi alone numbers over 300 informal settlements,⁷ with a population of 1.75 million.⁸ Countrywide there are 1,882 such settlements with a population of 7.9 million (see also appendices 1 and 2).

Figure 1: Africa's urban and rural population 1950-2050

(Data source: UN DESA 2012)



1 Kessides, C. (2005): *The urban transition in sub-Saharan Africa. Implications for economic growth and poverty reduction.* The World Bank. Working Paper Series No. 97: ix-9.

2 The World Bank (2011): *Turning the tide in turbulent times. Making the most of Kenya's demographic change and rapid urbanization.* In: *Kenya Economic Update 63265, Edition No. 4:* 20.

3 Kessides, C. (2005): *The urban transition in sub-Saharan Africa. Implications for economic growth and poverty reduction.* The World Bank. Working Paper Series No. 97: ix.

4 *Slums such as Mathare in Nairobi are even witnessing the emergence of multi-storey buildings.*

5 *Areas with 50% to 100% makeshift structures.*

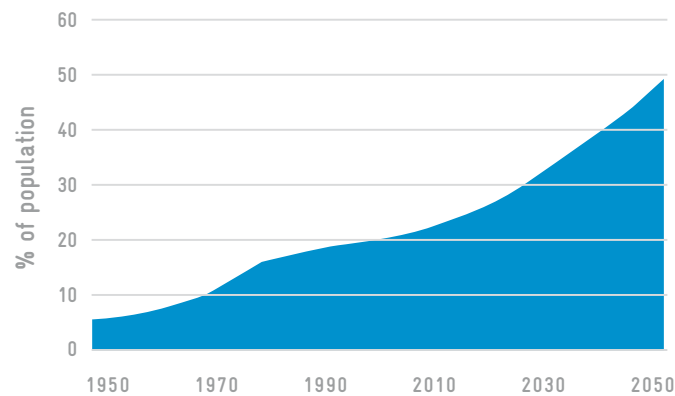
6 *Areas with >10% to 100% makeshift structures.*

7 *Densely populated makeshift settlements, of which many form part of urban areas, while remaining outside administrative boundaries and classified by the census as rural areas.*

8 *Data from 'MajiData' (www.majidata.go.ke), a database on water and sanitation established by the WSTF (Water Services Trust Fund) with the support of GIZ, UN-HABITAT, Google and KfW.*

Figure 2: Kenya's urban population growth

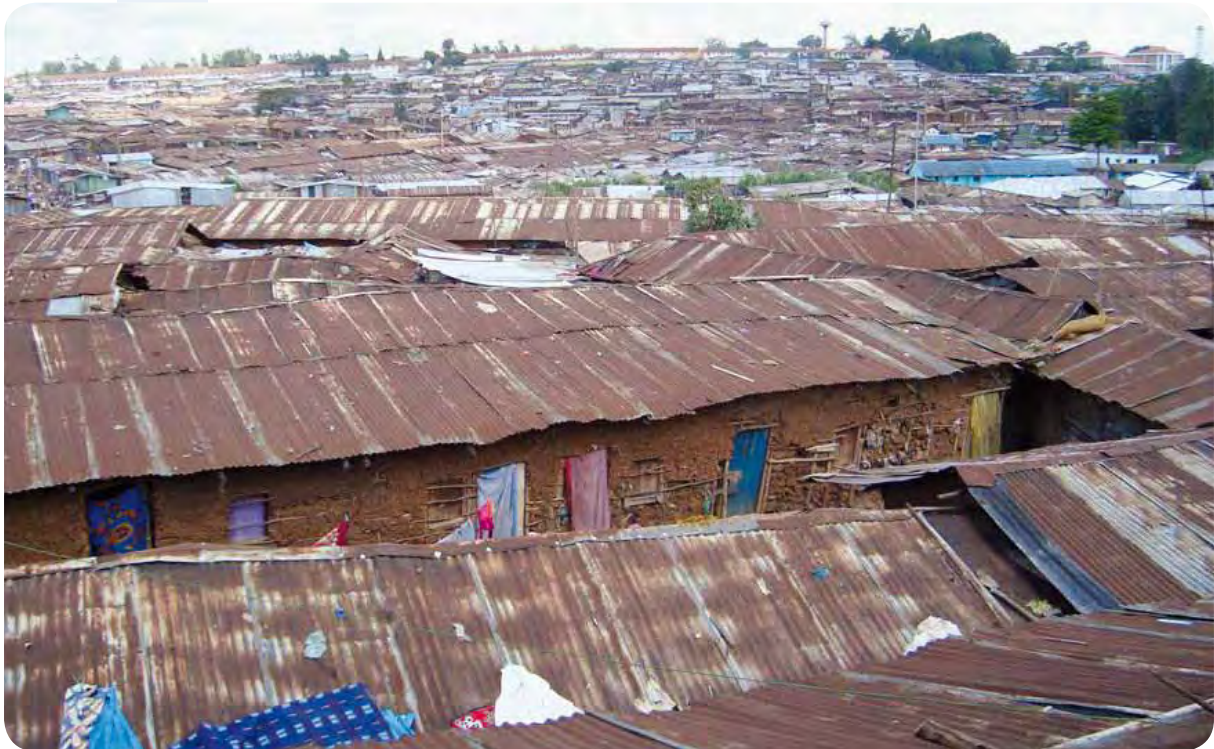
(Source: UN DESA 2012)



Even where economies are growing faster than the population, slums in Africa are set to grow in number and size because the gap between rich and poor is increasing faster in towns than in rural areas.⁹ In terms of income there are still more rural than urban poor, but urban poverty is growing more rapidly and dramatically, as the poor in towns face more sources of vulnerability.

According to Oxfam,¹⁰ it is high time note was taken of the growing scale of the urban crises. Politicians and donors need to reduce the disproportionate focus on rural areas by increasing efforts to

improve living conditions in urban low-income areas. During the Kenyan post-election violence in 2007/08, politicians got a taste of the consequences created by the urban crisis. The urban poor can be easily mobilised for conflicts, whether of an ethnic or social nature.



⁹ *The Gini coefficient in rural Kenya is 0.38 – similar to Portugal – but 0.59 in Nairobi – as it was in Johannesburg at the end of Apartheid. (Oxfam GB (2009a): Urban poverty and vulnerability in Kenya. Background analysis for the preparation of an Oxfam GB urban programme focused on Nairobi: 3).*

¹⁰ *Oxfam GB (2009b): Urban poverty and vulnerability in Kenya. The urgent need for coordinated action to reduce urban poverty: 2.*

2. The slum population is the most vulnerable in the country

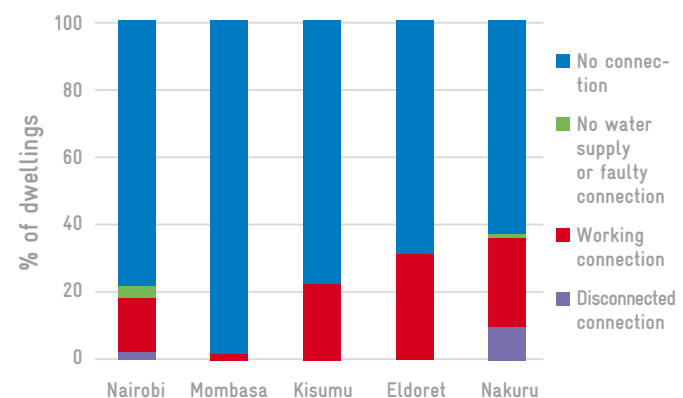
‘About 73% of the slum dwellers are poor’ and nationwide already 43% of the food-poor and hard core poor live in towns.¹¹ This trend is in sharp contrast to positive developments in poverty reduction in rural settings in recent years. The number of households in low-income urban areas which can no longer meet their basic food requirements with their total income is increasing. The poorest have to spend up to 75% of their income on food alone.¹² Rent payments for housing, much more common in urban than in rural settings, are very high compared to low household incomes (25%-30%).¹³

Physical proximity to social and infrastructure services, such as it exists in cities, does not guarantee actual access or affordability for slum dwellers (also compare figure 3).¹⁴ Basic services with controlled minimum standards do not reach the majority of the urban poor. An estimated 60% ‘of the population in greater Nairobi live in slums with limited or no access’ to basic infrastructure services (access to sanitation 24%, access to water 36%).

Conditions in the slums do not therefore allow for acceptable hygiene practices (see also appendices 3 and 4). The result is that the slum population has the worst health outcomes in the country¹⁵ – especially with regard to children: ‘over half are likely to suffer acute respiratory infection and almost half under 5 are stunted’.¹⁶ The rate of child mortality is higher than the national average. In these high density settlements flying toilets¹⁷ and open defecation have a devastating effect on public health and human dignity. Women and children bear the resulting burden disproportionately. ‘With regard to sanitation, women often have different privacy requirements from men. When the absence of latrines forces them to use public spaces, they can do so only in the shelter of darkness (...).’¹⁸ This exposes women to the danger of sexual harassment and violence.

Figure 3: Current status of water connection in slums

(Source: MajiData)



11 *The World Bank (2006): Kenya inside informality. Poverty, jobs, housing and services in Nairobi's slums. Report No. 36347-KE: 7.*
 12 *Oxfam GB (2009b): Urban poverty and vulnerability in Kenya. The urgent need for coordinated action to reduce urban poverty: 2.*
 13 *Spot checks in Nairobi slums by GIZ. In: Soldansky, R. (2011): Implementation of WASH United in Kenya and Burkina Faso. Evaluation report: 17.*
 14 *Kessides, C. (2005): The urban transition in sub-Saharan Africa. Implications for economic growth and poverty reduction. The World Bank. Working Paper Series No. 97: xii.*
 15 *Kyobutungi, C. et al. (2008): The burden of disease profile of residents of Nairobi's slums. Results from a demographic surveillance system. In: Population Health Metrics, 6 (1): 1.*
 16 *Oxfam GB (2009b): Urban poverty and vulnerability in Kenya. The urgent need for coordinated action to reduce urban poverty: 3.*
 17 *Excrement placed in (plastic) bags and thrown away on public property.*
 18 *Bosch, C. et al. (2011): Water, Sanitation and Poverty: 6.*



Beyond that, many slum dwellers are forced to pay gangs to control their settlements. Such cartels also often (illegally) control basic services, such as drinking water, thereby exploiting monopoly powers (e.g. uncontrolled water quality and prices, creation of artificial supply shortages). The consequence is that the poor pay 2-20 times more for water with no quality control.¹⁹ The population in the urban low-income areas is permanently discriminated against, while the better-off population living in the same town is provided with water and sanitation services by registered and regulated utilities. The resultant inadequate supply further increases health risks and keeps consumption too low for proper hygiene. Thus, the promotion of informal water and sanitation services in such areas, often disguised as successful private sector participation or community management, cements discrimination against the poor.

19 Spot checks in Nairobi slums by GIZ. In: Soldansky, R. (2011): Implementation of WASH United in Kenya and Burkina Faso. Evaluation report: 17. (In the slums the urban poor pay generally KES 2-10 for 20l and during shortages KES 20-60 from informal providers compared to KES 2 from the outlets of the regulated utility).

Many additional factors reflect the higher vulnerability of the urban poor in addition to greater economic poverty, appalling sanitation conditions and higher inequalities compared to the rural poor, e.g.:²⁰

- The urban poor, especially women and children, are exposed to high security risks. In slums infant and child mortality rates are higher than those in rural areas.
- While primary school enrolment is slightly higher in urban areas, the percentage of those actually attending secondary education is significantly lower than in rural areas.
- Slum children are less immunised than rural children and more prone to a number of diseases.
- The urban poor are twice as likely to contract HIV/AIDS, a particular burden on women, who carry two-thirds of the load.
- Gender inequality is growing in urban settings. Women are almost five times as likely as men to be unemployed.
- The slum population is more likely to lose their property due to disasters (such as floods, riots, lack of land tenure, etc.). Slums tend to be in the economically unappealing and therefore low-lying areas, which are often subject to flooding.
- Social support networks are weaker and exposure to bribery is higher, as a result reducing household income available for food in many cases.
- The urban poor are more exposed to the impact of inadequate governance.
- They face a higher incidence of high-risk livelihood (sex work, crime, child labour).

It is obvious that urban poverty is much more brutal than rural poverty and that it is on the rise, with consequences in terms of mortality, health and human security.²¹

²⁰ Oxfam GB (2009b): *Urban poverty and vulnerability in Kenya. The urgent need for coordinated action to reduce urban poverty*: 2.

²¹ Oxfam GB (2009b): *Urban poverty and vulnerability in Kenya. The urgent need for coordinated action to reduce urban poverty*: 5.

3. Basic water supply, sanitation and hygiene is key to national development and demographic opportunities

Insufficient access to drinking water and sanitation (W+S) involves a massive disease burden. 'It is estimated that 80% of all communicable diseases' are directly or indirectly linked to insufficient access to W+S facilities and hygiene practices (WSH).²² Without sufficient use of water and inadequate sanitation facilities, proper hygiene practices are impossible and recurrent diarrhoea is inevitable. Additionally 'frequent bouts of diarrhoea and intestinal parasitosis are important causes of malnutrition, which renders children more susceptible to other diseases' and mortality.²³

'Poor infrastructure is stunting economic growth and efforts to reduce poverty'.

UN Habitat (2011): 73

'Health evidence confirms that the burden of diseases associated with inadequate WSH is overwhelmingly (although not exclusively) carried by the poor and disadvantaged in the developing world and

is a major contributor to the cycle of poverty.²⁴ The poor in the slums bear the greatest share. GDP growth per capita in poor countries is much higher where access to WSH is improved (3.7%) compared to countries with less performing water sectors (0.1%). There is also a direct correlation between GDP/capita and child mortality.²⁵

Furthermore, the fact that every USD 1 invested in WSH yields approximately USD 10 in economic benefits (health, nutrition, time saved, productivity, etc.) should suffice to convince all decision-makers that investments in urban W+S are the ultimate priority and should serve as a major catalyst for a country's sustainable economic and social growth.²⁶

'Urban slum and peri-urban residents form the core of the urban workforce, and it is cost-effective to ensure their (...) access to basic services'²⁷, especially since cities serve as the growth poles of countries. Nairobi and Mombasa, for example, generate 40% of the national wage earnings despite accounting for only 10% of the Kenyan population.²⁸

22 Ministry of State for Planning (2007): *Kenya Vision 2030. A globally competitive and prosperous Kenya*: 115.

23 Bartram, J. & Cairncross, S. (2010): *Hygiene, sanitation, and water. Forgotten foundations of health*. In: *PLOS Medicine*, 7 (11): 2.

24 *Ibid.*: 8.

25 Hunter, P.R. et al. (2010): *Water supply and health*. In: *PLOS Medicine*, 7 (11): 2.

26 Bartram, J. & Cairncross, S. (2010): *Hygiene, sanitation, and water. Forgotten foundations of health*. In: *PLOS Medicine*, 7 (11): 3.

27 Kessides, C. (2005): *The urban transition in sub-Saharan Africa. Implications for economic growth and poverty reduction*. The World Bank. Working Paper Series No. 97: xii.

28 The World Bank (2011): *Turning the tide in turbulent times. Making the most of Kenya's demographic change and rapid urbanization*. In: *Kenya Economic Update 63265, Edition No. 4*: 22.

‘The World Bank’s World Development Report for 2009, “Reshaping Economic Geography”, found a strong correlation between population density and economic development (figure 4). Rich countries are urban countries. No country has ever reached high income levels with low urbanisation.’²⁹

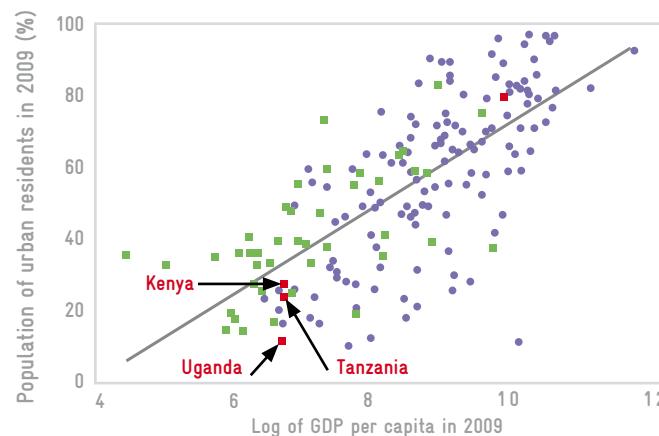
Population growth increases density and, together with rural-urban migration – as in Kenya – creates higher urban agglomeration. This is essential for achieving sustained growth, because large urban centres have distinct economic advantages, e.g.:

- They aggregate larger pools of labour, inputs and capital.
- As more people interact, there is more scope for innovation.
- Larger groups of population living in close proximity allow for economies of scale.

Figure 4: Urbanisation and economic development

(African countries are represented by green dots)

(Source: World Bank 2011: 20)



Under these premises, Kenya’s (urban) population development offers chances, too: Kenya is at the start of a demographic transformation – which initially appears in urban areas – due to two developments:³⁰

1. Fertility rates in Kenya are declining.³¹ Since 1960, the fertility rate has dropped sharply from 8 to 4.6 children per woman (urban and rural). According to population forecasts, it will continue to decline in coming years, especially in urban areas.

‘Urbanization supports the demographic transition.’

Kessides (2005): xiv

2. Kenya’s residents are getting older. The United Nations Population Division projects Kenya’s life expectancy to rise from 58 years today to 68.1 years by 2050.³²

²⁹ Fengler, W. (2010): Kenya can turn its rising population into growth tool. In: Kenya’s Business Daily, April 13, 2010.

³⁰ The World Bank (2011): Turning the tide in turbulent times. Making the most of Kenya’s demographic change and rapid urbanization. In: Kenya Economic Update 63265, Edition No. 4: 19.

³¹ Indeed, there is a large number of women in reproductive age in the country today because of the high fertility rates in the past. Therefore, the total number of children continues to grow for a while, even if fertility rates decline.

³² UN DESA (2011): World population prospects. The 2010 revision. <http://esa.un.org/wpp/unpp/p2k0data.asp> (2012-04-15).

³³ Fengler, W. (2010): Kenya can turn its rising population into growth tool. In: Kenya’s Business Daily, April 13, 2010.

The **Dependency Ratio** relates the number of children (0-14 years) and older persons (65 years or over) to the working age population (15-64 years). It indicates the potential effects of changes in population age structures for social and economic development, pointing out broad trends in social support needs.

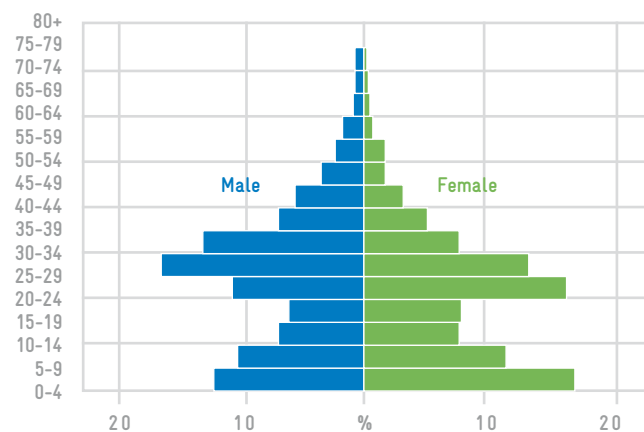
www.un.org/esa/population/unpop.htm

working age cohorts over the next decade.³⁴ As Figure 5³⁵ shows, adults of working age comprise a large proportion of the slum population. These data are consistent with the finding that 50% of high urbanisation is due to migration from rural areas in search of employment.³⁶ Kenya has an educated workforce and a dynamic service industry, which typically has lower barriers of entry than agriculture or manufacturing, and provides opportunities for young entrepreneurs.

If Kenya wants to harvest the opportunities of its demographic dividend, it needs to reduce fertility to below three children per woman and also provide basic services, especially water and sanitation to the rapidly urbanising country on a lot larger scale.³⁷ Basic water supply and sanitation function as a driver for this possible development, as explained below.

Figure 5: Population pyramid in Nairobi's slums

(Source: The World Bank 2006)



According to Hutton and Haller, one of the major gains of improving water supply and sanitation is the time saved through better access.³⁸ Data from Kenya show that urban women spend between 10 and 30 minutes walking to a well or water kiosk. Since women have to collect water for the whole family, more than one visit is required. 182.5 hours per person per year could be saved through access to improved water supply and sanitation.³⁹ 'For children aged 5 to 14 years, assuming an average of 3 days off school per case of diarrhoea, the global gain is almost (...) about 264 million days per year', if the water supply and sanitation

³⁴ Kessides, C. (2005): *The urban transition in sub-Saharan Africa. Implications for economic growth and poverty reduction. The World Bank. Working Paper Series No. 97: xv.*

³⁵ Based on: *The World Bank (2006): Kenya inside informality. Poverty, jobs, housing and services in Nairobi's slums. Report No. 36347-KE: 20.*

³⁶ Kamminga, E. & Wegelin-Schuringa, M. (2003): *HIV/AIDS and water, sanitation and hygiene. Thematic overview paper: 32.*

³⁷ Fenger, W. (2010): *Kenya can turn its rising population into growth tool. In: Kenya's Business Daily, April 13, 2010.*

³⁸ Hutton, G. & Haller, L. (2004): *Evaluation of the costs and benefits of water and sanitation improvements at the global level. WHO/SDE/WSH/04.04: 20.*

³⁹ *Ibid.: 21.*

MDG is met. Nearly 80% of these benefits accrue to Africa and South East Asia.⁴⁰

Reduced time for women and girls from improved water services gives them more time for 'productive endeavours, (adult) education, empowerment activities (...).'⁴¹

Moreover, comfortable access to water and sanitation means privacy protection and reduces the risk to women and girls of sexual harassment.⁴² It is a proven fact that women that women who are as 'well educated as men and who are able to participate in economic life frequently decide to have fewer children' (figures 6 and 7).⁴³

In Angola for example, women with a primary school education have an average of six children – two children fewer than women who have never attended school. Women's level of education affects not only the number of children, but also their health (figure 8). Mothers with at least a primary school education pay more 'attention to clean drinking water because they know more about diseases and hygiene than uneducated women.'⁴⁴

Improved water supply and sanitation also contributes to a decline in infant and child mortality. In many developing countries, children still count as additional workers and/or as some kind of 'guarantee of support in old age', since the majority of such countries have no or insufficient social protection systems.

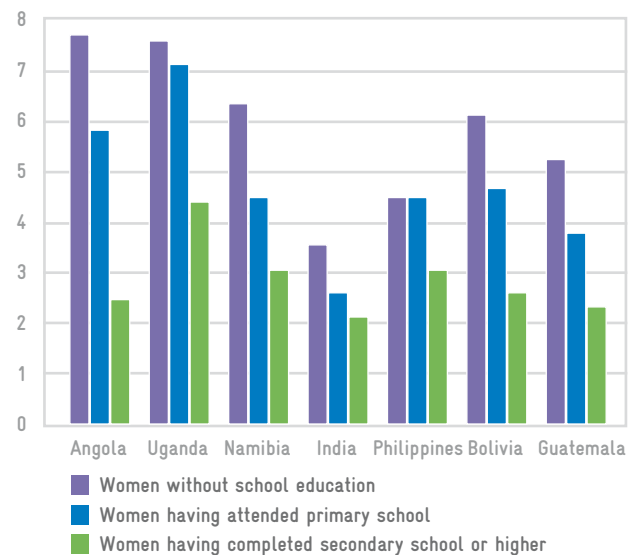
When it is not sure how many of their children will survive, parents commonly have more children in order to ensure that a few reach adulthood.⁴⁵ Research findings from Ethiopia show, for example, that mothers who lost a child had more children than women who were spared such an experience, even though both groups wanted the same number of children prior to their marriage.

'The **Demographic Dividend** is defined as the acceleration of economic growth, which results from the increase in the labor force and a relative decline in dependents (children or elderly). This happens when people start to live longer and when families have fewer children than previous generations.'

The World Bank Group (2011): 19

Figure 6: Average number of children per woman by educational degree

(Source: Berlin Institute for Population and Development 2011: 44)



⁴⁰ Hutton, G. et al. (2007): *Global cost-benefit analysis of water supply and sanitation interventions*. In: *WHO Journal of Water and Health*, 5 (4): 491.

⁴¹ UN Water (2006): *Gender, water and sanitation. A Policy Brief*: 2.

⁴² *Ibid.*: 2.

⁴³ Berlin Institute for Population and Development (2011): *Africa's demographic challenges. How a young population can make development possible*: 37.

⁴⁴ Berlin Institute for Population and Development (2011): *Africa's demographic challenges. How a young population can make development possible*: 44.

⁴⁵ *Ibid.*: 46.

Figure 7: Correlation between average number of children per woman and gender equality, measured by the Genderrelated Development Index (GDI) in 2007

(Source: Berlin Institute for Population and Development 2011: 42)

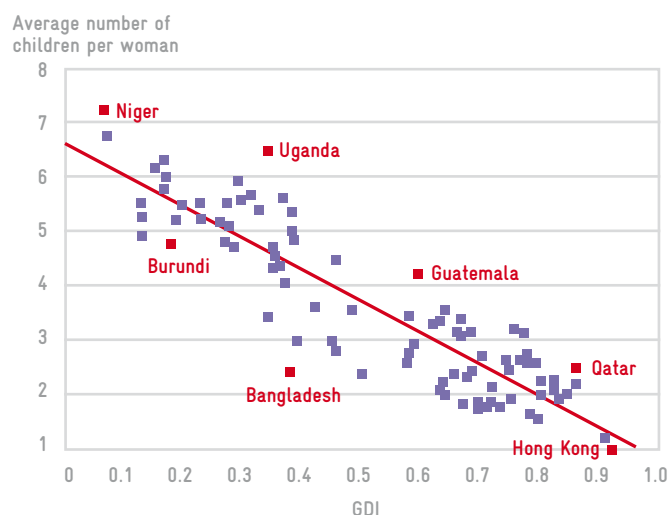
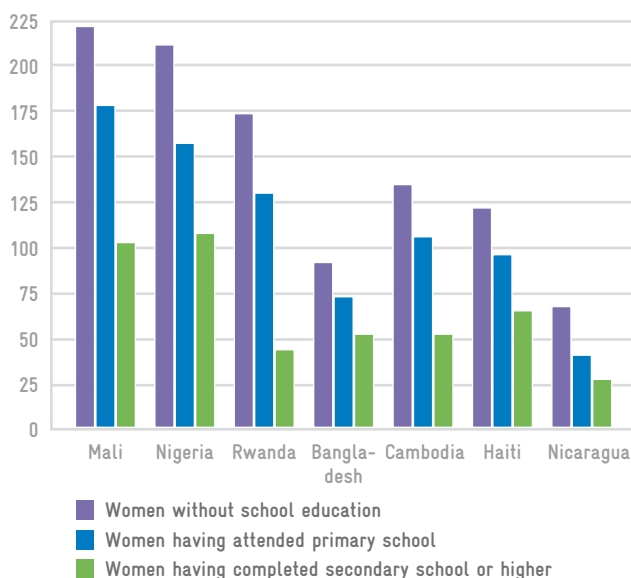


Figure 8: Number of children in 1,000, who died before reaching their 5th birthday, according to their mother's level of education

(Source: Berlin Institute for Population and Development: 45)



Higher rates of child survival are therefore a precursor to the demographic transition to lower fertility rates; having fewer children reduces women's household responsibilities and increases their opportunities for personal development.⁴⁶ The demographic transition in industrial countries proves the link between child mortality and birth: fewer children die thanks to clean drinking water, better hygiene and more vaccinations, and after a slight time lag, birth rates start to decline.

Water supply and sanitation improvements contribute twofold to the chance of a demographic dividend:

1. W+S produces a healthier and therefore more productive population, which is the basis for economic growth.
2. Through W+S, the population gains time for education and work, which contribute to the demographic development in various ways.

Improved water supply and sanitation with a strong focus on the urban poor therefore contribute not only to health, but also to economic growth, poverty reduction and security.

If Kenya wants to reap a demographic dividend and accelerate economic growth, the focus of actions needs to be on hot spots in the urban setting. The focus in progress in WSH must therefore be on the urban low-income areas/slums, which offer nationwide the biggest overall improvement on living conditions as a lever for national development – also with regard to the required expenditure.

Per capita spending in slums can be as low as USD 10 for the extension of formalised drinking water supply and USD 20 for adequate sanitation facilities.⁴⁷ Meeting the water MDG in developing regions carries an annual cost of USD 1.78 billion (combined water supply and sanitation MDG: USD 11.3 billion, due to significantly higher sanitation costs⁴⁸).⁴⁹ As we will see, this represents a relatively small amount when set against the associated health and economic benefits.

‘The potential annual health sector costs saved in developing regions amount to an estimated (...) US\$ 1.7 billion per year’ if the water supply and sanitation MDG is met.⁵⁰ If in the event of attaining the water supply and sanitation MDG, a situation can be avoided in which adults lose two working days through diarrhoea, the global gain would be 310 million working days. With 71% of the profits, two world sub-regions would be the main beneficiaries of these gains.⁵¹ All together, the attainable economic benefit ranges from USD 219 billion if the water supply and sanitation MDG is met to USD 400 billion for universal basic access. When the expected economic gains are compared to the expected costs per capita, the cost-benefit ratio is at least USD 5 per USD 1 invested.⁵²

As evidenced in current research, there can be ‘no growth and no significant poverty alleviation in Africa without (...) significant increase in infrastructure’.⁵³ Therefore, future urban population growth, the growing scale of urban (chronic) poverty but also the huge potential for economic and demographic benefits of scaling up access to basic water supply and sanitation in the slums with limited amounts of funds should no longer be ignored by governments and donors.

Importance of reliable demographic data – the example of Kibera

Total Population	Source
1,000,000	Amnesty International (2009): Auf engstem Raum. Kenia: Slums in Nairobi. Wohnen. In Würde: 4.
383,922	UN HABITAT (2010): The state of African cities 2010. Governance, inequality and urban land markets: 152.
355,188	Kenya National Bureau of Statistics (2010b): 2009 Kenya population and housing census. Volume IA: 34.
242,303	MajiData (2011): www.majidata.go.ke/slum.php?MID=MTE&SMID=MTk (2012-04-24).

47 Kenyan Water Services Trust Fund, UPC reports, 2010.

48 The higher costs of sanitation result from the lower current coverage and the higher per capita costs p.a.

49 Hutton, G. et al. (2007): Global cost-benefit analysis of water supply and sanitation interventions. In: WHO Journal of Water and Health, 5 (4): 489.

50 Ibid.: 489.

51 Hutton, G. et al. (2007): Global cost-benefit analysis of water supply and sanitation interventions. In: WHO Journal of Water and Health, 5 (4): 491.

52 Ibid.: 499.

53 United Nations Human Settlement Programme (UN HABITAT) (2011): Infrastructure for economic development and poverty reduction in Africa: 66.

4. Closing the data and information gap and making the growing crisis more transparent

Kenya is not the only country struggling with a lack of data concerning the urban poor and their desperate living conditions. Local data and data on income, level of education, gender, etc. are lacking.⁵⁴ Such data gaps need to be closed in order to reveal the full extent of the urban crisis and ensure that investment funds are optimised.

Relevant data on W+S are slowly emerging in a number of African countries. Extensive data collection exercises covering urban low-income areas have taken place for instance in Zambia (over 100 towns), Kenya (over 200 towns, MajiData)⁵⁵ and Tanzania.

The outcomes of such data are complemented by and should be integrated in the findings of specialised studies on urban poverty and health, which offer a more complete picture and allow for comparison between countries as well as the identification of correlations and impacts.

Research findings show for instance that the situation is particularly difficult in Kenya: in the slums of Nairobi, for every 1,000 children in a given year, around 30 die, compared to around 19 in Tanzania.⁵⁶ They further demonstrate that such high-density settlements (around 60,000 people per km²)⁵⁷ are characterised by social disintegration, high residential mobility and levels of interpersonal violence; the latter (12.1%) ranking third after AIDS and tuberculosis (49.9%) as causes of premature death among the population aged over five (gunshot wounds and mob justice are the most common injuries). In the list of improvements, access to water and sanitation is seen as top priority by the urban poor.⁵⁸

Such well documented findings are needed to allow decision makers 'to classify areas with a certain population density as urban, regardless of administrative boundaries'.⁵⁹ Administrations and institutions have to be supported financially and with personnel in order to gather data. The data could then be used for example for so called 'poverty mapping' in order to identify geographical areas for priority interventions in the case of water supply and sanitation and achieve a generally better understanding of the demographic dynamics of slums within cities (see also example in appendix 5). This would facilitate realisation of the full extent of the growing urban crisis, the adoption of appropriate solutions for accelerated national development and therefore preparation today for the developments of tomorrow.⁶⁰

⁵⁴ Berlin Institute for Population and Development (2011): *Africa's demographic challenges. How a young population can make development possible*: 55.

⁵⁵ MajiData is a database on informal and low-cost areas in all towns of Kenya established by the WSTF – (Water Services Trust Fund in Kenya) which was finalised in 2011; in Zambia it is the DTF (Devolution Trust Fund) which carried out the data exercise in 2005/2006.

⁵⁶ APHRC (African Population and Health Research Center) (2010): *Indicators from NUDHSS, 2003-2010*. http://www.aphrc.org/includes/stat_nbds_export.php (2012-04-24).

⁵⁷ Density confirmed by MajiData.

⁵⁸ Results from the data base on peri-urban areas in Zambia 2005/2006 and MajiData in Kenya 2010/2011.

⁵⁹ UN HABITAT (2003): *Slums of the world. The face of urban poverty in the new millennium?*: 48.

⁶⁰ GTZ (2007): *MDG monitoring for urban water supply and sanitation. Catching up with reality in sub-Saharan Africa*: 5.

5. Informal service provision and the human right to water and sanitation

In many African countries today just about 20% of the population in low-income settlements is served by utilities/formalised service providers.⁶¹ The majority of the urban poor depend on informal service provision with all the negative impact on living conditions and on national development outlined in previous chapters. This is the result of decades of neglect of the urban poor by sector politics. Politicians gave the utilities the freedom to ignore low-income areas and did not extend (public) services to slums as these were regarded as commercially unattractive, with infrastructural problems that were too difficult to be managed. NGOs and local privates often filled the gap with small-scale community-operated systems for which they collected money on humanitarian grounds. Other donors promoted 'market forces' or 'delegated management systems' in the implementation of the (local or international) private sector participation approach. These approaches all demonstrate the following weaknesses:

- Small-scale systems are not appropriate for urban water and sanitation service provision as more sophisticated technology and operations on a wider scale are needed to guarantee production at acceptable costs, with guaranteed minimum standards, and ensure sustainability of services.
- Community and small-scale private actors cannot attract and retain the needed professional personnel for urban systems.
- The smaller urban systems are prone to monopolisation by gangs and cartels once NGOs or donors disengage. There is even evidence that donor funds are sometimes channelled to such cartels and gangs through micro-finance schemes as gangs and cartels manage to camouflage themselves as community or local private sector actors.



⁶¹ Zambia: baseline study 2004; The World Bank (2006): Kenya inside informality. Poverty, jobs, housing and services in Nairobi's slums. Report No. 36347-KE: 32.

- Such small-scale systems use ground or surface water resources without proper treatment although it has been proven that groundwater sources in urban low-income areas are generally contaminated, even when classified as protected.
- Informal service providers cannot fulfil minimum standards and regulations. Their high number makes regulation impossible or far too costly. They are unable to fulfil regulatory obligations such as regular water quality testing, reporting, etc. Kenya is a very good example of how small-scale providers undermine a regulatory system.⁶²
- From a demographic point of view, small-scale systems do not seem to meet the needs of the rapidly growing urban population.

The bottom line is that small-scale informal systems have not helped to prevent or ease the growing water and sanitation crisis. ‘Delegation’ makes it too often easy for utilities to remain disengaged with regard to the urban poor. Small-scale systems or ‘delegated management’ solutions for the urban poor cannot fulfil the 10 criteria of

human rights for water and sanitation⁶³ and must therefore be gradually replaced by bigger systems operated by formalised service providers (utilities).

It is high time that poverty orientation of national policies and strategies were translated into benefits for all by obliging utilities to extend services to the urban poor and by enforcing regulation for such basic on all services. Otherwise, the urban poor will always pay much more for water of dubious quality than other urban dwellers. Politicians need to prevent promoters of informal service provision from undermining regulation. How can informality for the most basic goods

(W+S) be permitted when authorities insist that the production of less vital food and goods needs to be controlled?

With the rapid urbanisation and growing number of urban poor, politicians can no longer ignore the urban water and sanitation crisis and have started to oblige utilities in a framework of reforms to extend services to urban low-income settlements. It is now recognised that utilities can reach commercial and social goals in providing sustainable services for all. ONEA (Office National de l’Eau et de l’Assainissement, a water utility) in Burkina Faso has been a very good example of achieving cost recovery and a very high level of coverage with formalised services for over a decade.⁶⁴



⁶² WASREB (2008; 2009): *Impact. A performance report of Kenya's water services sub-sector report, Issue 1 and 2.*

⁶³ *The 10 criteria are: Availability, Accessibility, Quality/Safety, Affordability and Acceptability; Non-discrimination, Participation, Accountability, Impact and Sustainability: GTZ (2009): The human right to water and sanitation. Translating theory into practice: 8 et seq.*

⁶⁴ *Rapport de l'enquête sur le système BF de Ouagadougou (1999): 'Aperçu sur l'Etat d'Avancement de la Restructuration de l'ONEA et Perspective'.*

6. Managing the turn-around for access with improved frameworks

Huge investments in the past have not succeeded in stemming the decline in access to W+S (figure 9). It should now be obvious to all that money alone cannot achieve this. In percentage terms, the decline in Kenya appears rather modest (32% in 1998, 30% in 2009) but the absolute numbers of the underserved have doubled in 20 years. This demonstrates the failure of approaches prior to the reforms. The main reasons for the decline are: lack of political will to change, no (urban) poverty orientation, increasing urbanisation, insufficient policy and institutional frameworks, information gaps and misleading orientations by different sector players.

Realising these weaknesses, many African countries have embarked on far-reaching water sector reforms with the following key elements:

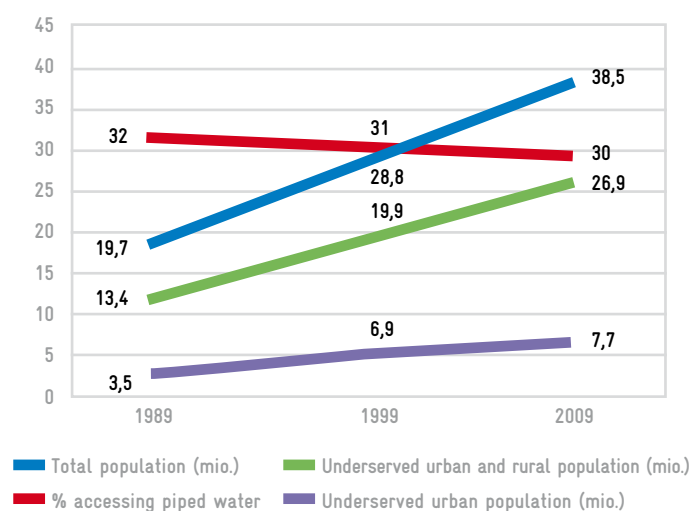
- separation of W+S from water resource management
- pro-poor orientation and recognition of the human rights to W+S
- specific/separate approaches for rural and urban W+S
- alignment of actions to national policies/strategies; harmonisation of stakeholders

It was realised that poverty orientation in a country means, above all, the provision of basic services to the poor with a priority on water and sanitation as these are 'essential prerequisites to long-term economic development'⁶⁵. In the water sector, poverty orientation primarily means:

- a special focus on the urban poor because of the huge leverage investments can achieve in such areas
- the implementation of rapid up-scaling concepts for access
- the formalisation of service provision (including for the poor) through the introduction of regulations for human rights to W+S criteria
- demography-related policy advice as a cross-cutting issue at national and local level.

Figure 9: Trends in access to piped water

(Source: Kenya National Bureau of Statistics 2010a)



⁶⁵ Hunter, P.R. et al. (2010): Water supply and health. In: PLOS Medicine, 7 (11): 3.

Successful reforms are based on tailor-made solutions recognising the substantial differences and challenges in rural and urban settings. Despite the strong sense of community in rural areas, the sustainability of rural systems remains a major challenge. If community management is challenging in rural settings, how can it be expected to work in urban settings where community coherence is often a myth (see previous chapters). Furthermore, technology and the necessary scale of urban systems require a much higher level of professionalism than small-scale systems can provide and maintain.

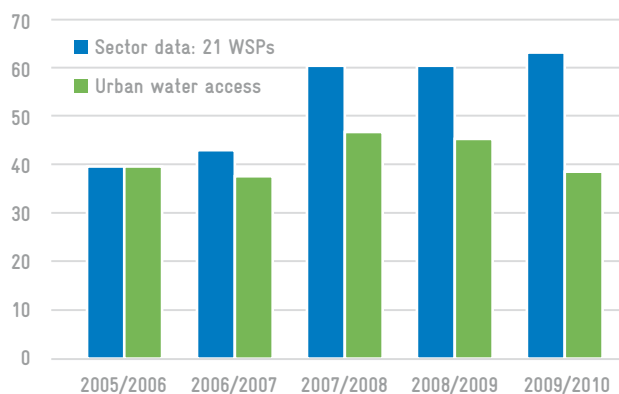
The distribution of water to the urban poor (closing the missing mile) with the activation of so called ‘market forces’ has also failed. In addition, the involvement of multinationals in the operation and development of W+S systems in our partner countries is often interpreted as sector reform. The successful sector reforms for urban W+S in Zambia, Burkina Faso and Kenya provide ample evidence that this is mistaken. Sustainable success has only been possible where efforts were focused on long term visions within a bigger picture rather than where ‘reforms’ concentrated only on single/isolated areas such as community management, privatisation, etc.

The negative trend in Kenya and in Zambia for instance has been reversed with a combination of simultaneous actions such as:

- the separation of policy making – regulation – service provision on national and local levels
- the development of a regulatory framework or promotion of good governance
- the commercialisation of service provision with autonomous utilities⁶⁶
- the creation of economies of scale⁶⁷
- attracting and training highly qualified/motivated professionals
- the establishment of pro-poor financing mechanisms.⁶⁸

Figure 10: Urban access in Kenya

(Source: WASREB 2011, Issue No. 4)



The progress in Kenya (figure 10) and Zambia (from 45% to 58% coverage within a time span of five years)⁶⁹ are good examples.

⁶⁶ The process of commercialisation is often described as the formation of a shareholder company, owned by municipalities, counties, other sector institutions, etc. when policy making and service provision are separated (e.g. transformation of a municipal department into a water/sewer company). This is not privatisation as understood by the promoters of participation by multinationals in water companies (Socially Responsible Commercialisation, GTZ/WASREB publication in Kenya, March 2007).

⁶⁷ E.g. clustering/concentration process as carried out locally in Zambia (10 urban providers countrywide) and partly in Kenya where the process is still ongoing.

⁶⁸ Like the DTF (Devolution Trust Fund) in Zambia and the WSTF (Water Services Trust Fund) in Kenya.

⁶⁹ NWASCO (2001-2011): Urban and peri-urban water supply and sanitation sector reports. Zambia.



In addition, sector reforms also promote the implementation of Sector Wide Approaches for planning (SWAp) where donor efforts are increasingly bundled and aligned to the new national policy framework. Sector reforms offer a good opportunity for the development of SWAp. In this way, aid effectiveness could be multiplied but only if modes of delivery are more related to impact and less understood as dogma.

While progress of sustainable access in water has begun to outstrip population growth in countries where deep rooted reforms are being implemented, sanitation still lags behind. 'Africa, at current rates of progress, will not meet (...) the sanitation target until 2108'.⁷⁰ Sanitation therefore needs to move higher up the policy agenda and contributions from all related sectors are needed regardless of which sector ministry is in the lead on sanitation. Even the sanitation sub-sector increasingly needs contributions from professionals such as performing water utilities. ONEA's contribution in Burkina Faso to sanitation since 1992 is a very good example of using such opportunities to improve access to sanitation in developing countries.

⁷⁰ Cairncross, S. et al. (2010): *Hygiene, sanitation, and water. What needs to be done?* In: *PLOS Medicine*, 7 (11): 2.

7. Up-scaling concepts in the water sector for the urban poor

As progress in national development depends, to a large extent, on access to quality controlled drinking water and basic sanitation, countries where urban access stands at or below 75% need new concepts to rapidly improve the W+S situation. Big investments alone cannot boost access because they do not go the 'last mile'⁷¹ and restructuring of water companies alone is also insufficient. In many countries, up-scaling concepts require policy reorientation and integration within comprehensive sector reforms. In the absence of such reforms, up-scaling with sustainable solutions cannot take place.

For instance:

- Despite the existence of a huge sector basket (over USD 1 billion in commitments in 2007) Tanzania has not yet managed to reverse the decline in access to W+S. 'There is not a linear relationship between money and progress'.⁷² Tanzania is now trying to overcome the challenge through the formalisation of informal service providers. This is a fruitless undertaking, as it would require a huge system of control, impossible to maintain and prone to more corruption on the ground, owing to the high numbers of informal providers. It will not lead to a situation where small-scale providers can fulfil the requirements of the human right to water and sanitation. The urban poor will remain discriminated against, and their living conditions will remain poor.
- Uganda is also lagging behind in sustainably serving the poor with water and sanitation according to human rights requirements, despite making considerable headway in the restructuring of its national service provider and decentralisation. It has improved the commercial performance of providers but many poor are still underserved and depend on neighbourhood sales promoted under the guise of so called 'market forces'. The national water company has too much influence on sector policies and is thus hampering the launch of comprehensive sector reforms and establishment of a regulatory framework to enforce standards at provider level. The separation of service provision and regulation is insufficient.

Both examples demonstrate that long-lasting change in the sector must come from comprehensive reforms. Once the new frameworks are implemented, pilot projects embedded in national institutions can test tailor-made solutions. These are important steps but still only yield results on a small scale – insufficient to reverse negative trends nationwide and convince decision makers and the public that the reforms are working. After pilot actions, reforms need to move to the next level.

Like sector reform concepts, up-scaling concepts for water and sanitation must be comprehensive in design and in terms of management approach. Such implementation concepts must integrate stakeholders who are able to fulfil certain basic principles and criteria: they must have legal power as duty bearers and local-level implementers must be given the necessary tools and mechanisms to ensure checks and balances (good governance) and a successful and objective-oriented implementation on a large scale.

⁷¹ *Going the last mile' means reaching the poor with the network of utilities in urban low-income areas.*

⁷² Cairncross, S. et al. (2010): *Hygiene, sanitation, and water. What needs to be done?* In: *PLOS Medicine*, 7 (11): 2.

Up-scaling must be based on an uncomplicated basic concept and at the same time very comprehensive in the design for implementation.

The key criteria for successful up-scaling concepts include the following:

- money made available for projects should be provided under competitive conditions and only to formalised utilities (for reasons of funding effectiveness and sustainability)
- selection of projects should be based on strict criteria, agreed upon beforehand to pre-empt politicians from diverting funds to their constituency with low value for money
- selection of technology/service levels must follow reality and demand on the ground
- project proposals have to be formulated according to well defined criteria and quality standards
- project proposals need to be based on solid and reliable information/data
- implementation must be closely monitored to detect irregularities rapidly as donors might lose interest if money is diverted or squandered
- the implementation process should be controlled by national structures and personnel (public, private and civil society) in order to ensure embedding in national structures and with resulting sustainability
- adequate checks and balances are needed at all stages together with quality monitoring to avoid nepotism and fraud (good governance).

These examples give some idea of the complexity of implementation of concepts and efforts for capacity building of the stakeholders involved which are required for successful and sustainable up-scaling of access to water and sanitation.

Up-scaling concepts need to focus first on 'low-hanging fruit' where value for money is highest. This is often not the case: 'In short, aid for the sector is not getting to where it is most badly needed'.⁷³ Overcrowded low-income areas need to be the prime areas for up-scaling because they have and will have (in the coming decades) the highest population growth rate in each country.

Successful up-scaling for access to drinking water in the urban setting through pro-poor financing mechanisms has already taken place in Zambia (around 800,000 additional people reached within 8 years, Devolution Trust Fund) and Kenya (approx. 750,000 additional people reached within 3.5 years, Water Services Trust Fund). Both have helped reverse long-standing declines in access to drinking water.

73 Cairncross, S. et al. (2010): *Hygiene, sanitation, and water. What needs to be done?* In: *PLOS Medicine*, 7 (11): 2.

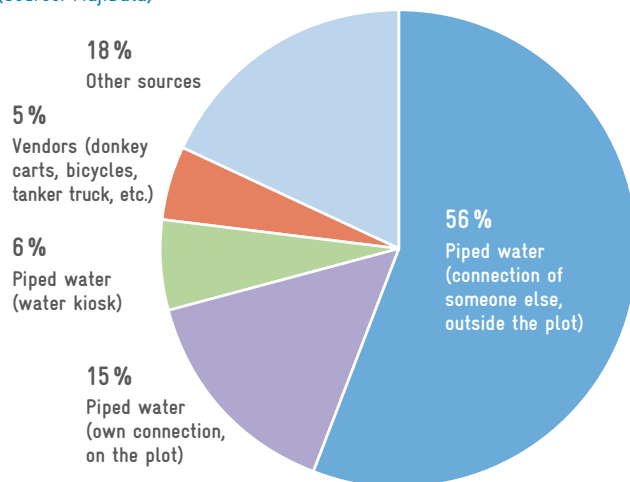
8. The particular challenge of up-scaling sanitation for the urban poor

For sanitation, the situation is more complex than for water. Generally ministries (and their relevant sector institutions) for water or local governments are held responsible for reporting on access to water and sanitation because they ensure investments in infrastructure and oversee service providers. But in international dialogue, the ministry of health is often regarded to be the key player for water and sanitation because water and sanitation are primarily seen in terms of health aspects. This, however, ignores the fact that access to water and sanitation also depends on infrastructure/facilities. An exclusive approach to water and sanitation in terms of health and hygiene aspects may distort the picture. Equally, the underserved population is not able to construct the needed facilities once demand has been created by hygiene education as some scholars seem to argue.⁷⁴ Again, hygiene education is not the single most important factor in

improving sanitation as other scholars imply: 'Outreach or health extension workers are found in many communities ... When such community-based health staff are told to give priority to hygiene and sanitation and are adequately supported, the results can be remarkable'.⁷⁵ Sustainable hygiene practices need adequate infrastructure and there are strong indications that people quickly abandon good hygiene practices learned during education campaigns. But building adequate toilet facilities and ensuring safe storage of human waste is a daunting challenge for people living on less than USD 1 or 2 per day. Water and sanitation facilities accordingly have to be subsidised, where people cannot afford to build them themselves.

Figure 11: Main source of drinking water in Nairobi's slums

(Source: MajiData)



A striking statistic is that when drinking water can easily be obtained through household connections (and most likely through public outlets linked to the utility network and placed close to the household like water kiosks) the risk of diarrhoea is reduced by 63%.⁷⁶ To tackle the growing urban crisis (see also figure 12), it is necessary to pay more attention to the way infrastructure (providing physical access) is developed and managed, the organisation of service provision and the protection of the environment. Given such a more comprehensive approach it becomes obvious that there are substantial differences in water supply and sanitation in urban or rural settings in terms of appropriate technical solutions, management of infrastructure/facilities, disposal and reuse of excreta, up-scaling concepts, priorities for investments, etc.

⁷⁴ *Ibid.*: 5.

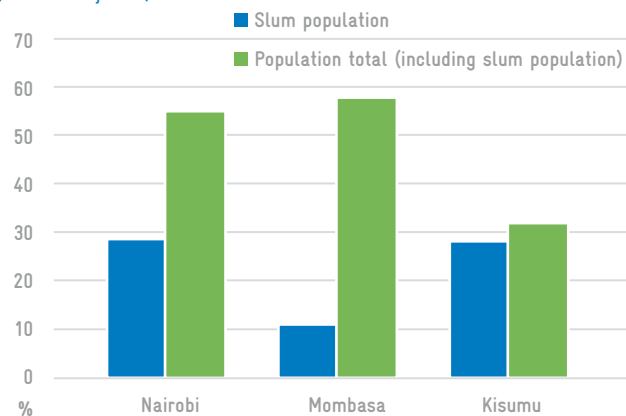
⁷⁵ Cairncross, S. et al. (2010): *Hygiene, sanitation, and water. What needs to be done?* In: *PLOS Medicine*, 7 (11): 6.

⁷⁶ Bartram, J. & Cairncross, S. (2010): *Hygiene, sanitation, and water. Forgotten foundations of health.* In: *PLOS Medicine*, 7 (11): 2.

But how can we improve access to sanitation quickly? Grid-based sanitation (sewer systems) cannot be up-scaled fast enough.⁷⁷ The funds required are simply too huge and unavailable in the medium term and many households cannot afford a monthly bill for water, let alone for connection to the sewer line. Sanitation up-scaling must therefore concentrate on onsite (plot and public) sanitation. In addition, sanitation concepts must go beyond drop and store facilities, at least in the densely populated settlements, as they are a major burden on public health. Development of sewer systems and onsite sanitation both need to be encouraged through incentive systems.

Figure 12: Population using improved sanitation facilities

(Source: MajiData)



ONEA in Burkina Faso has achieved outstanding results in improving sanitation coverage with onsite systems and offers a very good example of how a subsidy system implemented by utilities can gradually achieve sustainable development within an acceptable timeframe. The technology is thus not necessarily the important factor for sanitation, as long as it avoids environmental pollution. Dry latrines can be as effective as flush toilets in achieving huge health benefits.⁷⁸

The construction and sustainable operation of water supply and sanitation systems and the up-scaling of onsite sanitation for low-income urban areas are very complex undertakings and require many skilled professionals from different fields. The challenge is to bring together the different sectors – including infrastructure and hygiene education – and let each play the role to which they are best suited. Following their successful experience in up-scaling urban water supply, Zambia and Kenya are now moving towards scaling up sanitation in urban hot spots. It is too early to see solid results, as concept designs are still in the making and pilot projects are on-going. Nevertheless, it is expected that by the end of 2012 up-scaling sanitation will commence in the urban setting, leading to improvement or construction of acceptable basic sanitation facilities, which goes far beyond what we have seen so far. ‘There are many examples of highly successful local innovations in water supply, but few have scaled up beyond the district level. In sanitation, so few projects have achieved the construction of more than, say, 10,000 units that the same exceptions are endlessly cited in the literature.’⁷⁹

Kenya has the advantage of the experience generated by the EcoSan pilot project (2007-2010) which reached 50,000 people⁸⁰. Combined with their experience in scaling up access to water, sector institutions are ready, with donor support, to scale up sanitation by concentrating on urban low-income areas. This would be a genuine and substantial contribution to reaching the MDGs for water and sanitation on a sustainable basis.

⁷⁷ In the last 20 years Kenya moved from 16% coverage by sewerage systems to 19% despite growing investments in such systems.

⁷⁸ Bartram, J. & Cairncross, S. (2010): Hygiene, sanitation, and water. Forgotten foundations of health. In: PLOS Medicine, 7 (11): 1.

⁷⁹ Cairncross, C. et al. (2010): Hygiene, sanitation, and water: What needs to be done? In: PLOS Medicine, 7 (11): 2.

⁸⁰ Financed by EU, Sida, German Government (through GIZ).

9. Conclusion and Messages

Vision 2030 goals for the water sector (urban)

- Attaining 90% access to safe and reliable water for urban areas.
- Achieve 70% access to safe sanitation for urban households.
- Attain 40% sewerage access for urban areas.

Millennium Development Goal 7

'...reduce by half the proportion of people without sustainable access to safe drinking water and basic sanitation by 2015.'

UN (2007): 25

Kenya will have 37 cities of over 100,000 residents by 2020 (appendix 6 shows Kenya's six largest cities).⁸¹ This shows that the 'take-off in (...) urban population growth is yet to come'.⁸² The demographic challenge of continuing urbanisation

means that water and sanitation pressures are set to considerably worsen in future. Progress towards national goals depends on access to drinking water and basic sanitation in urban low-income areas. Without improvements in this sector, the goals of the Vision 2030 will be difficult to attain.⁸³

Clear understanding of the impact of the lack of water and sanitation on different poverty dimensions is therefore required. Only when these impacts and the relevance of water and sanitation are known can priorities for intervention be decided.

As we have seen, increased productivity through water and sanitation improvements is the 'necessary basis for reducing poverty' and sustained economic growth.⁸⁴ In a nutshell, Kenya has the opportunity to benefit from a demographic dividend. To ensure that the country takes full advantage of this opportunity, improved water and sanitation services and better urban governance with a focus on the poor are essential.⁸⁵ Improved health and education are prerequisites for benefitting from the demographic transition and water supply and sanitation act as levers to improve both.

The urban population also offers 'the biggest leverage potential for achieving the MDGs' through MDG 7, which aims to ensure environmental sustainability.⁸⁶ It underpins all MDGs, including those related to poverty (MDG1), education (MDG2), gender equality (MDG3) and especially the reduction of child mortality (MDG4).⁸⁷ The goals will therefore not be achieved 'as long as water and sanitation for the urban poor remains a by-product of major investments.'⁸⁸

81 *There are 21 cities of over 100,000 residents today (The World Bank (2011): Turning the tide in turbulent times. Making the most of Kenya's demographic change and rapid urbanization: 24).*

82 *Kessides, C. (2005): The urban transition in sub-Saharan Africa. Implications for economic growth and poverty reduction. In: The World Bank Group, Working Paper Series No. 97: x.*

83 *Ministry of State for Planning (2007): Kenya Vision 2030. A globally competitive and prosperous Kenya: vii-xiii.*

84 *Kessides, C. (2005): The urban transition in sub-Saharan Africa. Implications for economic growth and poverty reduction. In: The World Bank Group, Working Paper Series No. 97: ix.*

85 *Fengler, W. (2010): Kenya can turn its rising population into growth tool. In: Kenya's Business Daily, April 13, 2010.*

86 *GTZ (2007): MDG monitoring for urban water supply and sanitation. Catching up with reality in sub-Saharan Africa: 34.*

87 *Hunter, P.R. et al. (2010): Water supply and health. In: PLOS Medicine, 7 (11): 1.*

88 *GTZ (2007): MDG monitoring for urban water supply and sanitation. Catching up with reality in sub-Saharan Africa: 35.*

The key messages are:

1. The growing urban crisis in Africa should be recognised by decision makers as a key issue in development. The important contribution of improved water and sanitation services should be taken into account.
2. The integration of demographic data and scenarios helps make clear the challenges and opportunities present in water supply, sanitation and demographics.
3. The slum population as the core of the urban poor is the most vulnerable group in the country.
4. Improved W+S and demographic data and information systems make the growing urban crisis and its consequences more transparent and improve the focus and operational orientation of decision making.
5. Informal small-scale service provision for urban water and sanitation is inadequate as it fails to meet human rights requirements and perpetuates discrimination against the urban poor.
6. Up-scaling sustainable access for the poor requires reforms resulting in appropriate frameworks, financing mechanisms and implementation concepts.
7. In addition to hygiene education, the poor need subsidies for sanitation facilities, and professional assistance in up-scaling measures and ensuring sustainability of service provision.
8. A forward-looking demographically-oriented policy at national and local level is a decisive contribution towards tackling the urban crisis and the state of W+S. The aim is to enable decision-makers to be proactive in shaping future developments and making possible a demographic dividend.
9. It is important to learn from successful and innovative approaches at the local level and to incorporate these into regional and national policies and programmes.

MajiData – a new database for the urban poor and decision-makers

Did you know that 7,872,419 people in Kenya live in 1,882 urban low-income areas? That 4.3 is the average household size in low-income areas? Or that only 38.65% of residents of these areas obtain their drinking water from improved sources?⁸⁹

The pro-poor online database MajiData brings together facts and figures on water and sanitation in Kenya's urban low-income areas. With its combined focus on (a) low-income areas and (b) the water sector the database makes it possible to distinguish between rural and urban settlements on the basis of population densities instead of administrative boundaries. Meeting the water and sanitation needs of poor people requires different approaches for densely populated urban settlements and sparsely populated rural areas. In areas with increasing or already high population density, water sources and latrines or other causes of aquifer and surface pollution tend to converge. For that reason, certain water supply technologies, such as rainwater harvesting or protected yard wells which offer relatively secure access to water in rural settings, cannot be considered a source of safe drinking water in densely populated urban settlements. Categorising areas according to their population density thus directly contributes to the sector's objective to reduce water and sanitation-related public health risks.



Who else will **use** all this data?

Apart from the residents themselves, and of course the water sector institutions and service providers, MajiData will be useful for:

- ▶ The Ministry of Public Health and Sanitation
- ▶ The Water Services Regulatory Board
- ▶ Non-governmental organisations (NGOs)
- ▶ Development partners supporting the water sector
- ▶ The Ministry of Culture and Social Services
- ▶ Researchers looking for information on issues such as urban water supply and sanitation, urban development and urban slums



Did you know that there are **1,882** urban low income areas in Kenya's 212 towns?

How many people **really** live there? What's the **difference** between a low income area and a slum?

Find out the answers and more on

www.MajiData.go.ke ▶▶▶

The pro-poor database covering urban low income areas of Kenya

MajiData is the facts and figures on urban low income areas

good planning. www.MajiData.go.ke has satellite-linked data on:

- ▶ Water supply (sources, outlets, infrastructure, coverage)
- ▶ Sanitation (infrastructure, sanitation practices, coverage) and solid waste disposal
- ▶ Population, land ownership and land use
- ▶ Area layout (roads and drains)
- ▶ Habitation patterns and types of housing
- ▶ Socio-economic infrastructure and quality of life



MajiData collects and aggregates an unprecedentedly large amount of information and data on Kenya's urban low-income and underserved areas – planned and unplanned. By providing this information, the database supports the water service providers (WSPs) and water service boards (WSBs) in preparing realistic and tailor-made solutions for water supply and sanitation in urban slums and low-income planned areas. Detailed demographic data and scenarios are taken into account. The data is linked to satellite imagery. Furthermore, this publicly accessible, pro-poor online database also helps:

- to inform and empower residents so that they have the information they need to assess the level of service delivery in their area and approach their service provider to demand improved services;
- to enable the water service providers (WSPs) to develop evidence-based proposals for water supply and sanitation (WSS) projects;

MajiData
The Kenyan online water and sanitation database on urban low income areas

MajiData home About us Data Definitions References Methodology & Tools Gallery The MajiData project Help Search Contact us

Key water supply indicators:
 51.90% of area residents obtain their drinking water from improved sources (JMP definition)
 38.65% of area residents obtain their drinking water from Improved sources (WSTF definition)

Key sanitation indicators:
 46.76% of the urban population residing in a low income area use an improved sanitation facility (JMP definition)
 8.06% of the urban population residing in a low income area have an improved sanitation facility (JMP definition)
 27.82% of households share the improved sanitation facility (JMP definition)

Key population and housing data:
 212 cities and towns covered by MajiData
 1,882 is the total number of urban low income areas
 7,872,419 is the total population living in a low income area
 4.3 is the average household size in low income areas (MajiData)

Share about your Area

Quality of Life Indicators
 The MajiData Team has developed Quality of Life Indicators for the 1,882 urban low income areas in Kenya that are in our database. These sector indicators are based upon the current water supply and sanitation situation (etc.). They do not incorporate such issues as health, life expectancy and employment levels.
[read more](#)

Urban stories
 Tell us the story of the area you are living in, what you do, what you can't do. Tell us about your hardships, your family, your friends, your work, etc.. Of course we are also interested in stories about water supply, sanitation and the solid waste situation. If you are creative you can also send us a cartoon. We will put the best stories and cartoons on the website.
[read more](#)

Contribute to MajiData
 If you select your area in our database (see the Area level button) you will find a description. This description was prepared by us on the basis of interviews with residents. Maybe we have missed some important features. Help us to improve the description of your area. Send us your contribution and we may use it to improve our area description section. After you have submitted your text

Featured Area
NYALENDA A
 This month we focus on Nyalenda in Kisumu. Nyalenda is one of the largest informal settlements in Kisumu. Click the "read more" link below if you want to know more about Nyalenda, it's residents and the current water supply situation.

Map: Karte | Satellit

Province	NYANZA
District	KISUMU EAST
Division	WINAM
Location	KOLWA WEST
Sublocation	NYALENDA 'A'
City/Town	KISUMU
County	KISUMU
Water Services Board	LAKE VICTORIA SOUTH
Water Service Provider	Kisumu Water and Sewerage Company
Source date	28-April-2009
Quality of life	16

[read more](#)

- the Water Services Trust Fund (WSTF) to appraise and prioritise pro-poor project proposals based on a set of comparable criteria (e.g. number of people served, per-capita investment cost, current water supply situation, etc.);
- the Kenyan Water Sector to assess the current water and sanitation situation and the impact of both WSTF-funded and other projects in terms of their contribution to attaining the millennium development goals (MDGs) and the objectives specified in Kenyan Vision 2030;
- to shape demographic challenges and opportunities and support decision-makers in preparing today for the developments of tomorrow.

MajiData is an innovative initiative of the Kenyan Water Sector developed during the Annual Water Sector Conference held in November 2007. The Water Services Trust Fund started the MajiData-project on behalf of the Ministry of Water and Irrigation in 2007 with the development of data collection tools and other measures to prepare for a country-wide data collection exercise. The data collection took place between February 2009 and March 2011. MajiData was officially launched in December 2011.

MajiData has received technical advice and support from the Kenya National Bureau of Statistics (KNBS), the Regional Centre for Mapping of Resources for Development, GIZ, UN-Habitat, Google.org, ITC Faculty of Geo-Information Science and Earth Observation (University of Twente) and Upande. It was funded by UN-Habitat, KfW Entwicklungsbank, Google.org, GIZ and WSTF.

MajiData is easily accessible via its website <http://www.majidata.go.ke/>.

Glossary

Child Mortality Rate The number of deaths under age 5 per 1,000 live births in a given year. It is therefore also often referred to as under-5 mortality.

Crude Birth Rate (CBR) and Crude Death Rate (CDR) The CBR is determined by taking the number of births in a year in a country, dividing it by the country's population, and multiplying the number by 1,000. The CDR is similarly determined. The number of deaths in a year is divided by the population and that figure is multiplied by 1,000.

Demographic Dividend The decline in fertility during the demographic transition leads to a relative increase in the working-age population. As a result, the economically active parts of the population have to provide proportionately fewer people. Under the right circumstances (e.g. education and employment opportunities), this can lead to economic growth.

Dependency Ratio The dependency ratio provides information on the share of people who theoretically have to be supported by others. It is usually expressed as the number of those under 15 and over 64 per 100 persons of working-age.

Gender Related Development Index (GDI) The GDI measures achievement in the same basic capabilities as the Human Development Index (HDI), but takes note of inequality in achievement between women and men. The methodology used imposes a penalty for inequality, so that the GDI falls when the achievement levels of both women and men in a country fall or when disparity between their achievements increases. The greater the gender disparity in basic capabilities, the lower a country's GDI compared with its HDI.

Improved Water Supply and Sanitation Improved water supply generally includes better access to protected water sources (e.g. boreholes, protected springs or wells, stand posts). Improved sanitation generally refers to safer and more hygienic disposal of excreta. Methods used may include sewer connections, septic tanks or ventilated pit-latrines.

Infant Mortality Rate	The term indicates the numbers of children who die before reaching their first birthday. The figures are shown per 1,000 live births in a given year.
Informal Settlement	According to the OECD definition, informal settlements are housing units that have been constructed on land to which the occupants have no legal claim. These settlements are not in accordance with official planning and building regulations.
Human Right to Water and Sanitation	In July 2010, safe and clean drinking water and sanitation were declared human rights. A 192-member Assembly called on UN Member States and international organisations to offer funding, technology and other resources to help poorer countries scale up their efforts to provide clean, accessible and affordable drinking water and sanitation for everyone.
Millennium Development Goals (MDGs)	The MDGs constitute a framework for global development policy actions. Formulated in 2001 and agreed to by all 191 UN Member States, they address the needs of the world's poorest. The eight goals to be attained by the target date of 2012 are:
MDG 1	Eradicating extreme poverty and hunger.
MDG 2	Achieving universal primary education.
MDG 3	Promoting gender equality.
MDG 4	Reducing child mortality.
MDG 5	Improving maternal health.
MDG 6	Combating diseases, such as HIV/Aids and malaria.
MDG 7	Ensuring environmental sustainability and halving the proportion of the population without sustainable access to safe drinking water and sanitation.
MDG 8	Developing a global partnership for development.

Population Density	The average number of people per square kilometre.
Sanitation	In 2010 the rights to water and sanitation were declared human rights. This implies access to a continuous, sufficient and affordable supply of clean water for everyone. Sanitation thus describes facilities and services that ensure the safe handling of wastewater and human faeces. Basic sanitation should include the collection, transport, treatment and disposal, particularly of human excreta, guaranteeing a clean and healthy living environment.
Utilities	In this document the term 'utility' is used to refer to the main entity (public or private) charged with providing water supply and/ or sanitation services in urban areas.
Urbanisation	The increase in the proportion of urban population in the total population of the country. However, consideration of what type of population is urban often depends on administrative judgements. Urbanisation can basically occur in three ways: through an increase in the population in the cities (through natural population growth or through migration), through the creation of new cities from previously non-urban settlements or through the annexation of previously non-urban areas as part of existing cities.
Urban Growth Rate	Rate of increase in the proportion of urban population in the total population.

References

- AMNESTY INTERNATIONAL (2009): Auf engstem Raum. Kenia. Slums in Nairobi. Wohnen. In Würde.
- APHRC (AFRICAN POPULATION AND HEALTH RESEARCH CENTRE) (2010): Indicators from NUDHSS, 2003-2010. http://www.aphrc.org/includes/stat_nhdss_export.php (2012-04-24).
- BARTRAM, J. & CAIRNCROSS, S. (2010): Hygiene, sanitation, and water. Forgotten foundations of health. In: PLOS Medicine, 7 (11).
- BERLIN INSTITUTE FOR POPULATION AND DEVELOPMENT (2011): Africa's demographic challenges. How a young population can make development possible.
- BMZ (BUNDESMINISTERIUM FÜR WIRTSCHAFTLICHE ZUSAMMENARBEIT UND ENTWICKLUNG) (2006): Sektorkonzept Wasser. BMZ Konzepte 143.
- BMZ (BUNDESMINISTERIUM FÜR WIRTSCHAFTLICHE ZUSAMMENARBEIT UND ENTWICKLUNG) (2007): Partner für ein starkes Afrika. Zusammenarbeit im Bereich Wasser. BMZ Materialien 162.
- BMZ (BUNDESMINISTERIUM FÜR WIRTSCHAFTLICHE ZUSAMMENARBEIT UND ENTWICKLUNG) (2008): Entwicklungszusammenarbeit im Bereich Siedlungshygiene und Abwassermanagement. BMZ Spezial 158.
- BOSCH, C., HOMMANN, K., RUBIO, B.M., SADOFF, C., TRAVERS, L. (2011): Water, sanitation and poverty.
- CAIRNCROSS, S., BARTRAM, J., CUMMING, O., BROCKLEHURST, C. (2010): Hygiene, sanitation, and water. What needs to be done? In: PLOS Medicine, 7 (11).
- CARTER, R.C. & PARKER, A. (2009): Climate change, population trends and groundwater in Africa. In: Hydrological Sciences, 54 (4): 677-689.
- CLASEN, T., HALLER, L., BARTRAM, J., CAIRNCROSS, S. (2007): Cost-effectiveness of water quality interventions for preventing diarrhoeal disease in developing countries. In: WHO Journal of Water and Health, 5 (4): 599-608.
- FENGLER, W. (2010): Kenya can turn its rising population into growth tool. In: Kenya's Business Daily, April 13, 2010.
- GENSER, B., STRINA, A., DOS SANTOS, L., TELES, C., PRADO, M., CAIRNCROSS, S. BARRETO, M. (2008): Impact of a city-wide sanitation intervention in a large and urban centre on social, environmental and behavioural determinants of childhood diarrhoea. Analysis of two cohort studies. In: International Journal of Epidemiology, 37: 831-840.
- GIZ (DEUTSCHE GESELLSCHAFT FÜR INTERNATIONALE ZUSAMMENARBEIT GMBH), BUNDESMINISTERIUM FÜR WIRTSCHAFTLICHE ZUSAMMENARBEIT UND ENTWICKLUNG, Auswärtiges Amt, Bundesministerium für Bildung und Forschung, Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit, Bundesministerium für Wirtschaft und Technologie, German Water Partnerships (2012): Capacity Development in the Water Sector. German experience and services for water management worldwide. International Water Policy and Infrastructure Project.

- GIZ (DEUTSCHE GESELLSCHAFT FÜR INTERNATIONALE ZUSAMMENARBEIT GMBH) (2011): DeCiDe – Demographic Challenges in Development. IT-assisted simulation model and policy advice tool for decision-makers. Manual for users. (Pre-publication).
- GTZ (DEUTSCHE GESELLSCHAFT FÜR TECHNISCHE ZUSAMMENARBEIT GMBH) (2007): MDG monitoring for urban water supply and sanitation. Catching up with reality in Sub-Saharan Africa.
- GTZ (DEUTSCHE GESELLSCHAFT FÜR TECHNISCHE ZUSAMMENARBEIT GMBH) (2009): The human right to water and sanitation. Translating theory into practice.
- GTZ (DEUTSCHE GESELLSCHAFT FÜR TECHNISCHE ZUSAMMENARBEIT GMBH) (2010): Water and sanitation. Ensuring access for the urban poor in Kenya.
- GTZ/WASREB publication in Kenya, March 2007.
- HUNTER, P.R., MAC DONALD, A.M., CARTER, R.C. (2010): Water supply and health. In: PLOS Medicine, 7 (11).
- HUTTON, G. & HALLER, L. (2004): Evaluation of the costs and benefits of water and sanitation improvements at the global level. In: WHO/SDE/WSH/04.04.
- HUTTON, G., HALLER, L., BARTRAM, J. (2007): Global cost-benefit analysis of water supply and sanitation interventions. In: WHO Journal of Water and Health, 5 (4): 481-502.
- KAMMINGA, E. & WEGELIN-SCHURINGA, M. (2003): HIV/AIDS and water, sanitation and hygiene. Thematic overview paper.
- KENYA NATIONAL BUREAU OF STATISTICS (2010a): 2009 Kenya population and housing census. Volume II: Population and housing distribution by socio-economic characteristics.
- KENYA NATIONAL BUREAU OF STATISTICS (2010b): 2009 Kenya population and housing census. Volume IA: 34.
- KESSIDES, C. (2005): The urban transition in Sub-Saharan Africa. Implications for economic growth and poverty reduction. The World Bank. Working Paper Series No. 97.
- KFW ENTWICKLUNGSBANK (2012): Wasser und qualitatives Wachstum. KFW-Positionspapier.
- KYOBUTUNGI, C., ZIRABA, A.K., EZEH, A., YÉ, Y. (2008): The burden of disease profile of residents of Nairobi's slums. Results from a demographic surveillance system. In: Population Health Metrics, 6 (1).
- NWASCO (NATIONAL WATER SUPPLY & SANITATION COUNCIL) (2001-2011): Urban and peri-urban water supply and sanitation sector reports. Zambia.
- MINISTRY OF STATE FOR PLANNING (2007): Kenya Vision 2030. A globally competitive and prosperous Kenya.
- OXFAM GB (2009a): Urban poverty and vulnerability in Kenya. Background analysis for the preparation of an Oxfam GB urban programme focused on Nairobi.
- OXFAM GB (2009b): Urban poverty and vulnerability in Kenya. The urgent need for coordinated action to reduce urban poverty.

RAPPORT DE L'ENQUETE SUR LE SYSTEME BF DE OUAGADOUGOU (1999): Aperçu sur l'Etat d'Avancement de la Restructuration de l'ONEA et Perspective.

SIWI (STOCKHOLM INTERNATIONAL WATER INSTITUTE) (2005): Making water a part of economic development. The economic benefits of improved water management services.

SOLDANSKY, R. (2011): Implementation of WASH United in Kenya and Burkina Faso. Evaluation report.

THE WORLD BANK (2005): Water for the urban poor. Water markets, household demand, and service preferences in Kenya. Water Supply and Sanitation Sector Board Discussion Paper Series No. 5.

THE WORLD BANK (2006): Kenya inside informality. Poverty, jobs, housing and services in Nairobi's slums. Report No. 36347-KE.

THE WORLD BANK (2008): Cities of hope? Governance, economic and human challenges of Kenya's five largest cities. Report No. 46988.

THE WORLD BANK (2010): Gender in water and sanitation. Working Paper No. 59334.

THE WORLD BANK (2011): Turning the tide in turbulent times. Making the most of Kenya's demographic change and rapid urbanisation. In: Kenya Economic Update 63265, Edition No. 4.

UN DESA (UNITED NATIONS DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS) (2011): World population prospects. The 2010 revision. <http://esa.un.org/wpp/unpp/p2k0data.asp> (2012-04-15).

UN DESA (UNITED NATIONS DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS) (2012): World urbanisation prospects. The 2011 revision. <http://esa.un.org/unpd/wup/unup/p2k0data.asp> (2012-04-22).

UN HABITAT (UNITED NATIONS HUMAN SETTLEMENT PROGRAMME) (2003): Slums of the world. The face of urban poverty in the new millennium?

UN HABITAT (UNITED NATIONS HUMAN SETTLEMENT PROGRAMME) (2010): The state of African cities 2010. Governance, inequality and urban land markets.

UN HABITAT (UNITED NATIONS HUMAN SETTLEMENT PROGRAMME) (2011): Infrastructure for economic development and poverty reduction in Africa.

UNITED NATIONS (2007): The Millennium Development Goals report: 25.

UN WATER (2006): Gender, water and sanitation. A policy brief.

USAID (UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT) (2007): Kenya. Water and sanitation profile.

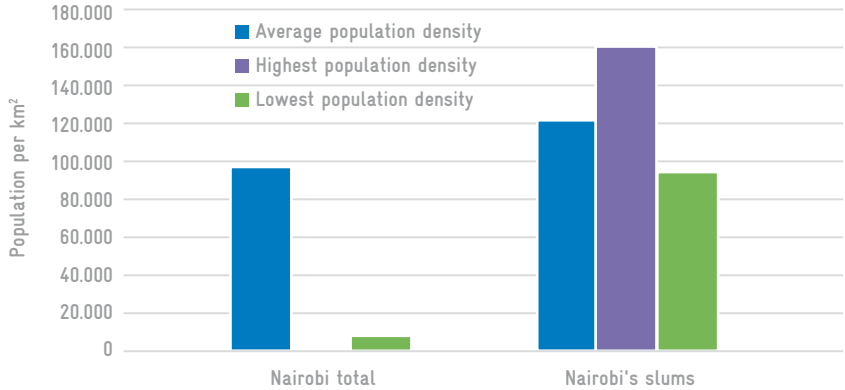
WASREB (WATER SERVICES REGULATORY BOARD) (2008; 2009; 2011; 2012): Impact. A performance report of Kenya's water services sub-sector report, Issue 1, 2, 4 and 5.

WHO/UNICEF (2006): Meeting the MDG drinking water and sanitation target. The urban and rural challenge of the decade.

Appendix

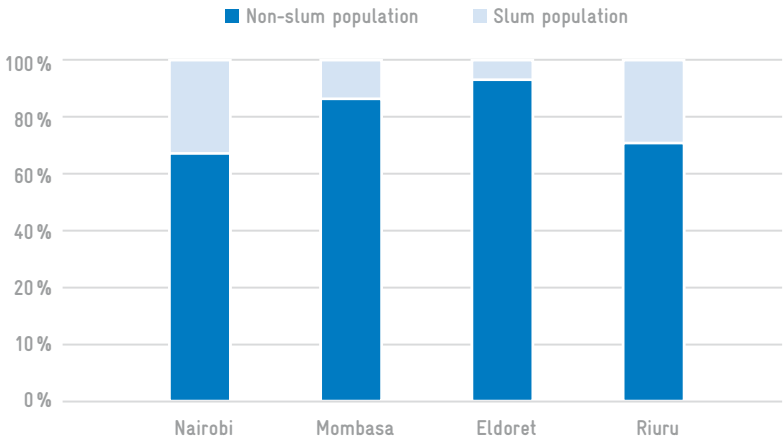
1. Population densities in Nairobi

(Source: MajiData)



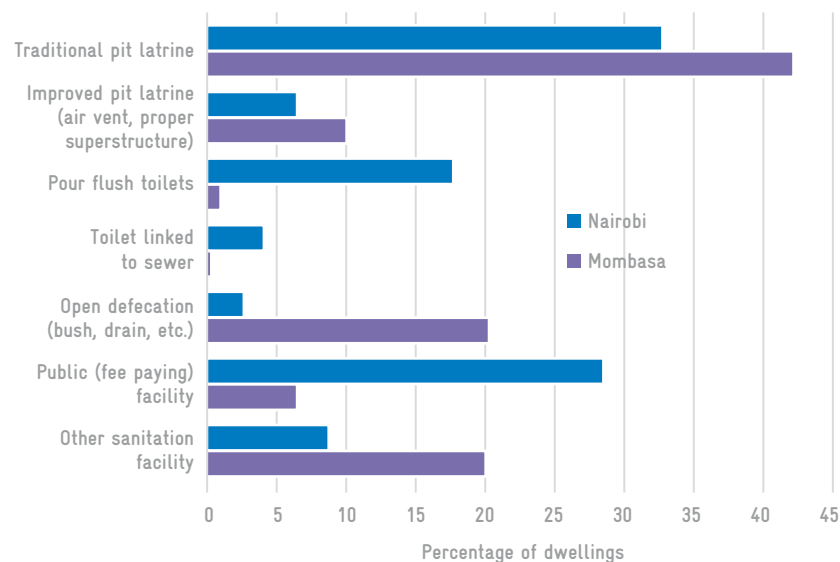
2. Shares of slum and non-slum population in Kenyan cities

(Source: MajiData)



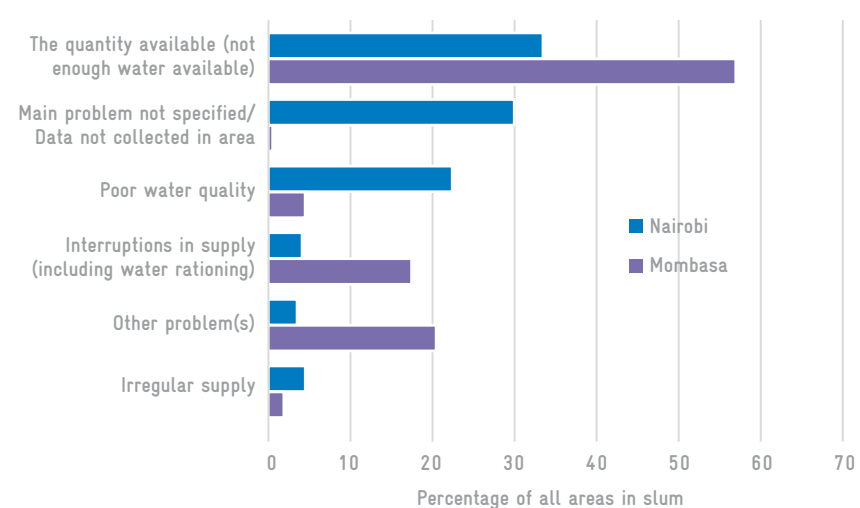
3. Sanitation facility or use in Kenyan slums

(Source: MajiData)



4. Main water supply problems in Kenyan slums

(Source: MajiData)





Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

Dag-Hammarskjöld-Weg 1-5
65760 Eschborn, Germany
T +49 61 96 79 - 0
F +49 61 96 79 - 11 15

E info@giz.de
I www.giz.de