(Un)reliability in sanitation monitoring: Analysis of East African urban data

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This article looks at the difficulties measuring sanitation improvements in eastern Africa, arguing that data supplied by international bodies such as the WHO and UNICEF may not always be realistic and should be used with caution.

Keywords: WHO, UNICEF, data, sanitation, east Africa, reliability.

Access to proper sanitation facilities is key to tackling human excreta related epidemics in developing regions. To achieve that, access to quality information on the sanitation sector is crucial in order to: (i) identify key problem areas; and (ii) optimize the use of available funds. Using national and regional socio-economic data for five East African countries, this paper highlights the complexity of acquiring realistic sanitation information and provides a preliminary assessment of survey data reliability based on WHO/UNICEF data.

Monitoring challenges in developing urban areas

In developing municipalities, the majority of inhabitants live in informal, low-income settlements. The lack of infrastructure and urban planning presents real challenges for data collection in these areas. This is especially true for the sanitation sector, where data scarcity can lead to a 'quasi-black box' approach,[1] or even prompt the exclusion of slums from general urban sanitation

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surveys.[1,2] When sanitation surveys do consider such areas, they only record the presence of toilet structures and not the level of its functioning. Such an omission is by no means negligible in defining data quality; with a study in the Kibera slum (Nairobi, Kenya) showing that 65% of the registered pit latrines were not functioning.[3] When adding to this the fact that internationally defined categories (Table 1) do not cover identical toilet facilities in different countries,[2] the complexity in assessing sanitation access in urban areas becomes evident.

Table 1. Urban sanitation coverage figures for five East African countries

	Percentage of slum population in urban areas in 2001 (UN-Habitat, 2006)	Urban sanitation coverage [%] in 2010, 2008 and 2006 (WHO/UNICEF, 2012, 2010 and 2008, respectively)			
		Improved sanitation*	Shared sanitation**	Unimproved sanitation***	Open defecation#
Kenya	70.7	32 / 27 / 19	48 / 51 / 77	18 / 20 / 2	2 / 2 / 2
Tanzania	92.1	20 / 32 / 31	20 / 30 / 24	58 / 36 / 44	2 / 2 / 1
Uganda	93.0	34 / 38 / 29	50 / 56 / 30	15 / 4 / 39	1 / 2 / 2
Rwanda	87.9	52 / 50 / 34	18 / 18 / 21	29 / 31 / 42	1 / 1 / 3
Burundi	65.3	49 / 49 / 44	22 / 22 / 20	27 / 27 / 34	2 / 2 / 2

Definitions (WHO/UNICEF, 2009):
** improved sanitation: flush/pour-flush toilets connected to piped sewer systems, septic tanks or pit latrines; ventilated improved pit (VIP) latrines; pit latrines with slabs; composting toilets;*
*** shared sanitation: using a public facility or sharing any improved facility;*
**** unimproved sanitation: the collective name for sanitation solutions as flush/pour flush toilets without proper connections; pit latrines without slabs or open pits; buckets and hanging toilets/ latrines;*
 # open defecation: no facilities are present and the surroundings (bush or field) are used for excretion.
2006 values in italic

Table 1. *Urban sanitation coverage figures for five East African countries*

Analyzing the reliability of sanitation data from urban East Africa

Perhaps the most important source of data on international access to sanitation is the joint biannual publication by the WHO and UNICEF. The data presented in Table 1 is taken from this publication and contains levels of urban sanitation coverage for five East African countries in 2006, 2008 and 2010, respectively.[4,5,9] Since each of the annual data sets share the same methodology, any change in coverage should reflect the achieved progress and/or improvement in survey quality.[6]

The high proportion of slum population in urban areas across these five countries indicates that any errors made in slum surveys can significantly affect the total urban data. As slums usually do not receive priority in sanitation upgrading, the high biannual changes in Table 1 are questionable; improved sanitation in Kenya for example had a 19% share in 2006 then grew to 27% in a mere two years and expanded to a further 32% by 2008. Ugandan shared sanitation is also shown to have developed from a 30% share in 2006 to be the dominant sanitation form within two years. The need for intensive financial, institutional and construction capacity efforts to achieve such significant changes undermine the reliability of data recording such a sectorial improvement. The same story is revealed in the case with Rwanda and Burundi's high shares of improved sanitation. In the recent past, both countries experienced devastating civil wars that also affected their sanitation sectors.[7,8] As a result, 68-76% of all mortalities in Burundi could be linked to

inadequate water supply and sanitation until recently,[8] raising questions of the reliability of the recorded improvements.

No trend of improvement or deterioration can be observed at the regional level either. Tanzania's rise in improved sanitation from 31% to 32% before falling dramatically back to 20% shows a similar but opposite trend when compared to Kenya's. Kenya's unimproved sanitation sector increased from 2% to 20% by 2008, while the neighboring Uganda exhibited a shrinking trend from 39% to 4%. Considering that even one basic latrine costs between $10-50,[2] such remarkable changes would require immense campaigns for toilet construction, upgrading and obsolescence. Since East Africa's long-term sanitation progress is generally much slower,[5] the massive changes recorded in the data seem unrealistic.

Concluding remarks

Reliable information is key to the efficient tackling of the sanitation crisis. Unplanned and informal low-income settlements appear to pose serious limitations in achieving a high level of reliability of sanitation data in the assessed region. The arguments presented above suggest that even data supplied by international bodies such as the WHO and UNICEF may not always be realistic and should be used with caution. Accepting unrealistic figures in evaluations may significantly affect the quality of urban (slum) sanitation assessments and therewith its place on the political agenda. Therefore, sanitation and public health experts are advised to use relevant technical and socio-economic indicators that are not directly classified as sanitation data, when evaluating the reliability of sanitation survey figures.

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About the author

Dr. Gábor Szántó is an environmental expert specialising in biological treatment methods (composting, anaerobic digestion) and appropriate technology applications in developing regions. Until recently, he researched environmental infrastructures of urban East Africa at Wageningen University (the Netherlands). At present, he operates Szancore, a small environmental consultancy.

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