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# Application of existing knowledge: the only way to meet the MDG sanitation target in developing countries

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## Abstract

The MDG sanitation target is, at current progress, unlikely to be met. The most important reasons for this are (1) that at local level, and in some countries at national level, engineers and planners simply do not know what sanitation systems are available, nor how to design them; and (2) a lack of political commitment, commonly at local level but again in some countries at national level. Local lobbying by the media and demonstrations (in urban areas) by the poor might change political attitudes, but without the appropriate knowledge local engineers and planners will remain unable to design sanitation systems for the urban and rural poor. The 'sanitation challenge' from today to 2015 is how to get this knowledge to local professionals in their own language.

## Keywords

Low-cost sanitation; knowledge transfer; Sub-Saharan Africa

## INTRODUCTION

All countries in the world, including all those in Africa, have agreed to achieve the MDG sanitation target by 31 December 2015 - just over seven years from now. However, the February 2008 publication *A Snapshot of Sanitation in Africa* (WHO & UNICEF, 2008a) presents a very gloomy picture: currently no country in Sub-Saharan Africa is 'on track' to meet the MDG sanitation target (Figure 1). The

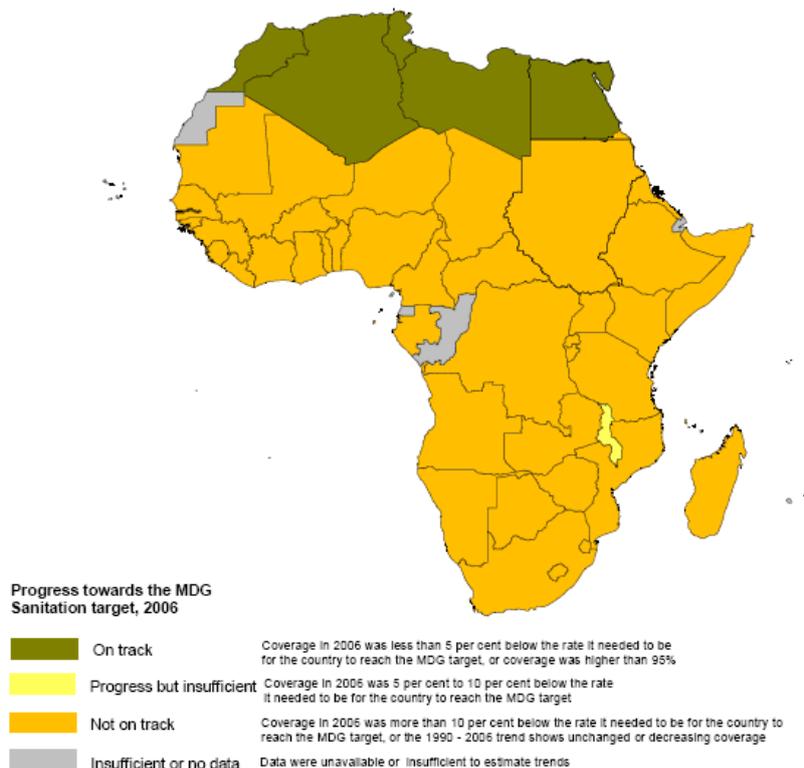


Figure 1. Progress towards the MDG sanitation target in Africa in 2006 (WHO & UNICEF, 2008a)

situation in much of Asia and parts of Latin America is little better (WHO & UNICEF, 2008b). The announcement for this conference on the Internet is equally pessimistic: “Without concerted effort and action, the international community is likely to miss ... the Millennium Development Goals relating to water and sanitation” (NETSSAF, 2008) So what can be done? Is there any way we can begin to get more countries on-track?

## PREREQUISITES FOR ACTION

### Political commitment

There can be no solutions without political commitment. Governments have to actively support the achievement of the MDG sanitation target. This should be easier for them once they know that the benefit-cost ratios for sanitation are mostly  $>>1$  (and all higher than those for water supplies (Table 1) – i.e., once they understand that investing in sanitation is not only a good socio-political decision, but also a very sensible economic decision.

**Table 1.** Benefit-cost ratios for sanitation investments in selected African countries to meet the MDG sanitation and water supply targets

Country	Benefit-cost ratio for improved sanitation	Benefit-cost ratio for improved water supplies
Benin	5.7	3.7
DCR	8.3	5.2
Ethiopia	1.6	1.1
Guinea	7.4	4.7
Kenya	5.5	3.5
Mozambique	3.6	2.6
Nigeria	4.2	2.9
Togo	4.7	3.1
Sudan	4.8	2.9

Source: Hutton et al. (2006)

The eThekweni Declaration of 20 February 2008 (AfricaSan, 2008), signed by 32 African Ministers and Heads of Delegations responsible for sanitation and hygiene, commits governments in Sub-Saharan Africa “to review, update and adopt national sanitation and hygiene policies within 12 months of AfricaSan 2008 [i.e., by March 2009]; establish one national plan for accelerating progress to meet national sanitation goals and the MDGs by 2015, and take the necessary steps to ensure national sanitation programs are on track to meet these goals.”

A bold statement but, of course, actions speak louder than words. Governments must be aware of the results of any inaction - these are very simply stated: if Sub-Saharan Africa just continues as at present, the MDG sanitation target will not be met until around 2076. Countless tens, maybe hundreds, of thousands will die needlessly if nothing is done. In effect Governments will continue to allow their citizens to “defecate themselves to death”. They have to realise that the choice between action and inaction, between life and death, is theirs and theirs alone.

## **Knowledge**

Restrepo-Tarquino (2001) found that the most important reason for the failure of water supply and sanitation projects in Colombia was the lack of technical knowledge at local level. It does not seem unreasonable to suppose this is also the case in much of the rest of Latin America, but also in most of Africa and Asia – certainly general experience confirms this. However, local government engineers and planners have to have the in-depth knowledge to plan, design and implement appropriate sanitation programmes and projects in their administrative areas. Without this knowledge there can be no progress. This applies equally to locally active NGOs. Knowledge transfer to the local level is probably *the* major constraint to the achievement of the MDG sanitation target.

## **Finance**

The financial requirements to meet the MDG sanitation target are ~USD 35.8 billions per year during 2005-2014 (Hutton and Bartram, 2008) - this may seem a very large amount of money but, to quote Feachem (2004) who was referring to the funds needed for the Global Fund to Fight AIDS, Malaria and Tuberculosis but whose remarks apply equally to water and sanitation:

"Some people say that these numbers are too large and are over ambitious. One has to ask too large compared to what? Too large compared to the \$70- 80 billion to be spent this year in Iraq and Afghanistan? Too large in relation to the \$350 billion that the EU and USA spend in subsidizing their farmers in order that they can compete unfairly with the farmers of the developing world? Too much in relation to the \$1.5 trillion that those who live in the USA will spend on their own health in 2004? ... I do not think so!"

In practice there will be plenty of money from international, multilateral and bilateral agencies available to governments to finance well-planned appropriate sanitation programmes and projects, just as there is for any well-planned development programme or project.

## **Good governance**

Good governance (especially no corruption, promotion of pro-poor sanitation policies, programmes and projects) is essential for success. 'Free' countries, *sensu* Freedom House (2007), are better at sanitation provision than 'partly free' or 'not free' countries (Mara, 2008a).

## **APPROPRIATE SANITATION SYSTEMS**

An informed choice of the most appropriate sanitation system has to be made for every sanitation project. A brief review of candidate systems given below, but it should be appreciated that, as noted above, many of these systems are currently in the 'knowledge gap' at local level in most developing countries, so making informed choices difficult at best and erroneous at worst.

### **High-density low-income urban areas**

The choice here is normally between simplified sewerage (Mara et al., 2001; Melo, 2005), low-cost combined sewerage (Guimarães and de Souza, 2004) and community-managed sanitation blocks (Burra et al., 2003). Few engineers in Sub-

Saharan African are able to design these sanitation options, yet world population growth over the next 40-50 years will be mostly in these areas.

### **Medium-density low-income urban areas**

On-site sanitation systems are now feasible and here the choice is between alternating twin-pit VIP latrines (Mara, 1985), urine-diverting alternating twin-vault ventilated improved vault latrines (WIN-SA, undated), alternating twin-pit pour-flush toilets (Roy et al., 1984), and biogas latrines (Nguyen, 2003), although low-cost sewerage may also be an appropriate choice. However, it should be noted that in urban areas ecological sanitation systems are currently inappropriate as they are “not yet ready for large scale application” (Otterpohl, 2008).

### **Rural areas**

The choices are single-pit VIP latrines or pour-flush toilets, UD-VIV latrines, and very simple EcoSan systems such as fossas alternas and, especially in dispersed areas, Arborloos (Morgan, 2007; Mara, 2008b). Simplified sewerage has been successfully used in ‘linear’ villages in northeast Brazil (Sarmiento, 2001).

## **APPROPRIATE SANITATION PLANNING**

There is much advice in the literature on sanitation programme planning, most of which has been reviewed in NETSSAF Work Package 4 (NETSSAF, 2008b; Saywell, undated; see also GHK Training & Research, 2002 and Mara, 2008c). It is a relatively straightforward task to select which planning models to use in low-income urban and rural areas, and it must be realised that good planning is essential for success and that poor projects are often the result of poor planning.

## **A ROLE FOR RESEARCH?**

Actually, to achieve the MDG sanitation target, research has no role as 31 December 2015 is too close - any research done now will not be used in large-scale sanitation projects before this date. However, applied R&D may well have a role - for example, demonstration-scale Arborloos in dispersed rural areas, local adaptation of simplified sewerage, etc.

## **NECESSARY ACTIONS**

### *Political commitment*

Central and local governments have to be involved: they must facilitate sanitation programmes and projects, and Sanitation Plans at both national and local levels are needed and they demonstrate commitment, at least on paper. Civil society and the media have a crucial role in cajoling politicians and ministries into action (this, of course, requires a relatively free press). ‘Sanitation demonstrations’ by the urban poor can also shame politicians into action.

### *Knowledge transfer*

No matter how committed politicians are, how well the intended beneficiaries are consulted, or how well gender is taken into account, if local engineers do not know what the available sanitation options are (and they are few in number, see Mara, 2008d), let alone how to design them, then any sanitation project is unable to serve

the best interests of the poor. The major challenge we face during the run up to 2015, but actually well beyond this arbitrary 'MDG date', is how to get the appropriate knowledge to engineers and planners in developing countries, especially at the local level and in the local language. This will be very costly but, to quote Professor Derek Bok of Harvard University, "If you think education is expensive, try ignorance." We have been trying ignorance for far too long and it is now time to invest in education and training.

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