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THE FUTURE OF WATER, SANITATION AND HYGIENE:
INNOVATION, ADAPTATION AND ENGAGEMENT IN A CHANGING WORLD

A closer look at the sanitation ladder: issues of monitoring the sector

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The WHO / UNICEF Joint Monitoring Programme (JMP) reports progress in sanitation by looking at the use of a set of pre-defined sanitation technologies. A technology-based approach offers several advantages, but it does not effectively deal with such problems as hygienic conditions of infrastructure and equity. In this study the monitoring strategy employed by the JMP is reviewed with reference to experience in Ethiopia and Tanzania. Although findings may not accurately represent the complexity of the sanitation status worldwide, a comparison of the two cases shows that many of the issues to effective monitoring are generic. On the basis of this analysis, two recommendations are identified for further study: (i) to extend list of criteria when assessing improved sanitation by considering aspects related with hygienic condition of the latrine; and (ii) to review and validate those aspects that prevent shared latrines from counting towards improved sanitation.

Introduction

It is indisputable that improvement in water, sanitation and hygiene contributes to improved health (Esrey et al. 1991). But in addition to direct health gains, sanitation offers other not inconsiderable social and environmental benefits (Cairncross and Valdmanis 2006; Scott et al. 2003). Today, 2.6 billion people have no access to improved sanitation and 1.1 billion have no facilities at all (Joint Monitoring Programme 2010).

To help end this appalling situation, sanitation has been included in the Millennium Development Goals (MDGs) as specific target (number 10) to cut in half, by 2015, the proportion of people with no access to safe drinking water and basic sanitation. This internationally accepted goal has been a strong driver for development, and national governments and donor agencies have focused attention on the progress towards it and various related targets. The Joint Monitoring Program (JMP) of UNICEF and the WHO has taken over the role of reporting on the status of water-supply and sanitation, although this monitoring has come out challenging for various reasons. Among others, the JMP struggles with reliability of the data to assess progress, inconsistencies in reporting formats, and lack of consensus on definition of adequate sanitation (Cotton and Bartram 2008). Against this background, a set of core questions have been formulated (WHO/UNICEF 2006) in order to provide a harmonized categorization of sanitation services and therefore improve on the comparability of data. In the end, a technology-based approach has been proposed as a proxy when estimating the coverage figures, since this is the information that can be consistently collected at a large scale. It is therefore assumed that certain types of technology are more adequate than others. First, sanitation technologies are considered as providing adequate access to sanitation as long as they are private (but not shared / public) and hygienically separate human faeces from human contact (Joint Monitoring Programme 2010). Second, facilities are divided into two categories (Joint Monitoring Programme 2000): (i) improved latrines and (ii) unimproved latrines. Based on these two parameters, sanitation coverage is presented as a four-step ladder that distinguishes between: (i) open defecation; (ii) unimproved sanitation; (iii) shared sanitation; and (iv) improved sanitation. Only last step is considered as "coverage".

The purpose of present study is to contribute to the existing debate about strategies for improved monitoring in the sanitation sector. It offers an analysis of case studies from Tanzania and Ethiopia, looking at both the potential and limitations of the approach adopted by the JMP. On the basis of this, a number of

recommendations for further study have been formulated as an initial step to ultimately enhance monitoring and its effectiveness.

Methodology

The paper builds on a combination of relevant literature review and specific local experience from two case studies (one rural district in Ethiopia and one other in Tanzania). In each district, a data collection campaign was planned in collaboration with partner institutions to illustrate major issues. In Ethiopia (Bora District), data was collected during May 2010 by INGO Intermon Oxfam jointly with staff from the Technical University of Catalunya. In Tanzania (Kibondo District), field work was carried out by INGO Ingeniería Sin Fronteras – Asociación para el Desarrollo from June to July 2010.

In both cases, the survey conducted for data collection was household-based. Key features of the sampling frame included: (i) selection of a sample size of households that allowed for separate estimates at and below the district level (i.e. ward in Tanzania and kebele in Ethiopia); (ii) definition of clusters of households which cover all area of intervention; and (iii) random probabilistic technique for household selection at cluster level. In every visited household, the service level was captured through a structured questionnaire and direct observation of sanitation status. Issues addressed included among others (i) sanitation technology, (ii) use of sanitation facilities; (iii) latrine standards; (iv) hygienic practices; and (v) latrine conditions. In Ethiopia, a set of socio-economic aspects were also measured with the aim of assessing provision of basic services on most vulnerable groups within beneficiaries. In all, 3,656 households were surveyed to cover 20 targeted wards at Kibondo District (Tanzania), while the sample at Bora District (Ethiopia) included 3,756 households across 18 kebeles.

Results and discussion

The following sections examine the findings in detail. More specifically, the study was aimed at testing the following research hypothesis:

- The presence of a particular excreta disposal facility is not synonymous with usage of that facility.
- The use of improved technologies is not sufficient prerequisite to guarantee adequate latrine conditions in the long-term, thus failing to break down the faecal-oral transmission of disease.
- The wealthiest are more likely to enjoy the benefits of improved facilities.

It is worth noting however that although the study was designed to provide a rigorous analysis, findings may not accurately represent the complexity of the sanitation status worldwide. Achieved results are therefore more useful in showing a range of possible outcomes and sector trends.

The sanitation ladder

The core sector goal is to ensure adequate use of sanitation facilities. The picture which emerges from the two case studies is somewhat mixed. In Ethiopia, at Bora District, the great majority of people (42.4%) accessed an improved facility. However, 24.6% used unimproved sanitation and 26.9% practised open defecation. Only 6.1% shared the facility. Among the improved technologies, pit latrine with slab accounted for the highest proportion (48.2%), while the most common type of unimproved toilet facility was an open pit or one without slab (24.1%).

One study hypothesis underscored that provision of sanitation does not always guarantee their use. And it is recalled that it is the consistent use of sanitation, not its mere existence, which isolates contaminated faeces and leads to health and environmental improvements. It is worth noting in this regard that up to 14.1% of households did not use their latrine despite having adequate access. Almost half of them cited maintenance issues as the reason, whilst privacy (2.3%) and lack of hygienic conditions (6.8%) were other reasons but seldom reported. Interestingly, in four out of ten interviewed households main reason for not using a latrine was cultural-related.

In Tanzania, the coverage of improved sanitation was alarming, averaging only 2.9% for the whole survey. Shared use of latrines was marginal (0.3%), and only 0.6% of households had no access to sanitation at all, thus practising open defecation. By and large, the traditional pit latrine was the most common sanitation infrastructure in the district (65.2%), although open pits were also used by 31% of the population.

Latrine conditions

The number of sanitation facilities is not necessarily an indication of improved hygiene, since a latrine that is not well-maintained might become a focus for the transmission of diseases. In addition, a toilet that is maintained correctly offers a pleasant environment in which to urinate or defecate, and this might act as a motivation factor to use the facility (Scott et al. 2003). In those households where a latrine was used, its hygienic condition was visually evaluated, and particularly four different proxies were verified: (i) inside cleanliness, (ii) presence of insects, (iii), smell and (iv) privacy. The aggregation function employed to build up one single composite (i.e., index of latrine hygienic conditions) was the arithmetic mean of above-named four indicators.

In Ethiopia roughly eight out of ten improved facilities did not present "acceptable" conditions, whilst the data for Tanzania shows that nine out of ten improved facilities inspected were considered to be unhygienic. More specifically, roughly three-fifths of improved latrines presented risky hygienic conditions, both in Ethiopia (58.2%) and in Tanzania (59%). It is also worth noting that contrary to what might be expected, conditions of shared and unimproved latrines were not noticeably worse than those that are improved[1]. A closer analysis of the data from Ethiopia shows that on average (i) only 36% of observed latrines were found clean; (ii) very few were fly-proof and insects were observed in 80% of the latrines; (iii) an unpleasant smell was reported in almost three-quarters of inspected latrines; and (iv) over half of latrines (54%) did not present adequate conditions of privacy.

Equity

Access to basic services is strongly linked to social and economic conditions of population, and impacts of inadequate sanitation are felt most acutely by poor people. In addition, it has long been recognized that poor sanitation is a determining factor in the cycle of poverty, since sickness and disease inevitably leads to low productivity (Scott et al. 2003). It might be therefore recommended to undertake monitoring by poverty levels, identifying those socioeconomic groups at risk.

In Ethiopia we developed a wealth index to evaluate the long-term standard of living of the household and provide some insight in the correlation between socio-economic status and sanitation indicators. The composite was based on data from asset ownership and dwelling characteristics, and households were stratified in four different quartiles according to their socioeconomic status. The richest 25% of the population in the area of intervention was almost two times as likely to use an improved sanitation facility as the poorest quartile, while the poorest 25% was around two times more likely to practise open defecation than the richest quartile. Still, even among the richest quartile, 16.6% practised open defecation. Moreover, households without their own latrine were asked why they did not have one. Just over one quarter cited cost-related issues as the reason; i.e. no money (17%) or no appropriate land on which to build the latrine (9%). Interestingly, 26% of households reported cultural-based obstacles, whilst in almost four out of ten interviewed households main reason for not having their own latrine was lack of habit to use the facility.

Recommendations for moving ahead

This study provides a snapshot of some of the very significant challenges associated with monitoring the sanitation targets. To do this, we reference to experience in Ethiopia and Tanzania. However, and though comparison of the two cases shows that many of the monitoring issues are generic, main findings might not be considered as conclusive but as the basis for further research. These are:

- The sanitation ladder is a useful tool for monitoring progress towards the MGD's. Major advantage is that standardizes the definition of "access" variables and improves reliability of data. However, current coverage estimates might be over-optimistic since considerable percentage of facilities classified as improved present high hygienic risks and fail to break the faecal-oral disease chain. Definition of improved / unimproved could be refined to include those hygienic aspects which have benefits for human health. This study employs four proxy indicators that are associated with hygienic outcomes (i.e. cleanliness, presence of insects, smell and privacy).
- In terms of environmental protection, there is evidence that latrine sharing is markedly better than open defecation as a sanitation practice (WaterAid 2009). And this study shows that hygienic conditions of shared facilities are not noticeably worse than those that are improved. Further research is needed to examine suitability of shared latrines from the viewpoint of privacy, and decide whether they should count towards improved sanitation.

Finally, it has been highlighted that access to basic sanitation is highly dependent on wealth, and one additional challenge might be to monitor -and to use monitoring information- for pro-poor targeting. In this study however, most commonly cited reasons for not having a latrine were cultural-based and lack of habit to use it; and cost-related issues were only reported by one quarter of interviewed households. This entails that other factors influence access, such as educational attainment of household members, hygienic habits, etc. Further attention to better understand aspects of equity is needed to address gaps in service delivery.

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Keywords

Sanitation coverage, sanitation ladder, equity, monitoring, Tanzania, Ethiopia

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Notes

[1] In Tanzania, since the sample size of shared latrines was too small to take these data as representative, they were excluded from analysis.

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