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Quantifying Water and Sanitation in Development Cooperation: Power or Perversity?

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*The Power of Numbers: A Critical Review of MDG
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Preface

This paper is one of a series of papers in a research project, *The Power of Numbers: A Critical Review of MDG Targets for Human Development and Human Rights (the “Project”)*¹. Motivated by a concern with the consequences of the Millennium Development Goals (MDGs) beyond the achievement of the 2015 targets, the Project seeks to explore their broader policy and programmatic implications. It focuses particularly on the reductionism inherent in the way in which these global goals were set and came to be used, as well as the potential for distorting priorities and marginalizing, or even displacing, important human development and human rights concerns inherent in such global goal-setting exercises. A total of 11 studies are included, each analyzing the normative and empirical consequences of a particular MDG goal/target, and considering what other targets and indicators might have been more appropriate. The Project aims to identify criteria for selecting indicators for setting targets that would be more consistent with Human Development and Human Rights priorities, amenable to monitoring impacts on inequality, accountability and consistency with human rights standards.

Although this paper is currently accessible as a free standing working paper, it should be read in conjunction with the [synthesis](#) and [background](#) papers of the Power of Numbers Project. These papers provide necessary information about the scope of the Power of Numbers Project, the historical framing of international agreements leading up to the MDGs, and the human rights and human development frameworks referenced in the paper. These working papers are expected to be compiled as a special issue of the *Journal of Human Development and Capabilities*.

¹ An independent research project coordinated by Sakiko Fukuda-Parr at The New School and Alicia Ely Yamin at Harvard School of Public Health. Support from the UN Office of High Commissioner for Human Rights, UN Development Programme, Frederick Ebert Stiftung, Dag Hammarskjöld Foundation, and the Rockefeller Foundation are gratefully acknowledged.

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Malcolm Langford² and Inga T. Winkler³

For more than half a century, domestic water issues have constituted a theme of international cooperation and, since 1976, a subject of quantitative target setting. In this respect, the water and sanitation sector offers a useful barometer of international development policy, almost a *longue durée*, an elongated period of time punctuated by constant change yet gripped by the same persistent issues and tensions.

Within this period we can identify two stories concerning the utility of a turn to metrics. The first is a perennial and at times justified optimism in target setting. The targets set in 1976 (and possibly 2000) appear to have made some contribution in accelerating progress towards providing access to basic water and sanitation. This effect was conditional though on the targets being embedded in a broader institutional and political process, a clear narrative and a concerted ‘push’. On the contrary, the targets set in the 1990s (and possibly 2000) appear to have had little impact since they were more of a ‘paper variety’: the international development community had shifted its attention elsewhere – to privatization, permit systems, water resources management. This optimism in targets continues in the water and sanitation sector with international officials leading early and proactive efforts to shape the post-2015 framework (WHO and UNICEF, 2012b: 13).

The second story is a more cautionary tale. Indicator measurement has papered over challenging but significant issues such as equality, safety, affordability and regularity while targets have been gradually adjusted downwards over time. One needs to ingest a heavy dosage of salt in interpreting the official results. Moreover, the demand for simplicity and manageability in target and indicator lists means that significant issues in the sector are excluded or twisted. Water is a multifaceted subject: it constitutes a social, environmental, economic and political good and is intricately connected with sanitation, hygiene and safe wastewater disposal as well as food production and livelihoods. The price of narrow target setting is the loss of these holistic dimensions.

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In this paper, we begin with an overview of the major international trends in the sector including two early periods of target setting. This is followed by a critical analysis of the 2000/1 Millennium Development Goals (MDGs) with respect to water and sanitation and an examination of their various impacts in practice. In the final section we offer some brief conclusions on the implications for the post-2015 agenda and some potential alternative routes to tread in target and indicator selection.

Trends and Targets: 1936-1999

Whereas the use and regulation of transboundary water resources has been a topic of international negotiation, treaty-making and adjudication for millennia, the global focus on water resources, supply and sanitation within the state is a uniquely modern concern. In 1936, the League of Nations Health Organization produced a report on water supply and treatment (WHO, 2003) and the post-war World Health Organization piloted and established rural community level water and sanitation in a range of developing countries (Bartram, 2012).

It was not until the 1970s, however, that intra-state water and sanitation issues became a regular subject of international conferences, resolutions, action plans and political statements. Initially the focus was on the environmental dimension (Klaphake and Scheumann, 2001). Principle 2 of the 1972 Stockholm Declaration proclaims that the “natural resources of the earth, including ... water” must be “safeguarded for the benefit of present and future generations”. The Action Plan makes further mention of water supply and sanitation, water pollution, cooperation of states over transboundary water resources, and in a broader context, the integrated planning and management of natural resources.⁴

No specific time-bound targets were set in the Stockholm Declaration and Action Plan. Instead, it was the social dimension of water that first attracted quantification at the 1977 UN Water Conference in Mar del Plata. States declared water a human right: ‘all peoples, whatever their stage of development and their social and economic conditions, have the right to have access to drinking water in quantities and of a quality to their basic needs.’ The Mar del Plata Action Plan constituted the first comprehensive global water strategy⁵ and notions

⁴ *United Nations*, Report of the United Nations Conference on the Human Environment, Stockholm, 5-16 June 1972, A/CONF.48/14/Rev.1, Chapter II, Action Plan for the Human Environment, Recommendations 1(a), 9, 10, 102(j), 71, 77, 81, 83, 51-55.

⁵ *United Nations*, Report of the United Nations Conference on Water, Mar del Plata, 1977, E/Conf.70/29, Chapter I.

of justice feature strongly with a call for equitable distribution and priority for both the poor and water scarce areas.⁶ Of particular relevance, provision of water and basic sanitary facilities was declared a priority area with a target of achieving universal provision by 1990.⁷

This target was reaffirmed in the proclamation of the International Drinking Water Supply and Sanitation Decade for 1981-1990 although the benchmark was more ambiguous. UN Member States pledged, “to bring about a *substantial* improvement in the standards and levels of services in drinking water services and sanitation by the year 1990”.⁸ The question was, what did “substantial” mean? Faced with this open phraseology, policy makers opted initially for a maximalist understanding, reviving the language of Mar del Plata. It was a target of *universal* coverage. However, this ambition was moderated a few years later. The universal objective was maintained for urban water coverage, but targets of 80 percent coverage were set for urban sanitation and 50 percent for rural water supply and sanitation (Diamant, 1992).

Unfortunately, these targets were not achieved. At the 1990 Global Consultation on Safe Water and Sanitation in New Delhi, the assessment was rather disillusioning. Partly impressive achievements in absolute figures were largely negated by population growth leaving one third of the developing world’s population without access to water supply and sanitation. In addition, the promotion of expensive technologies in rural areas was highlighted as a problem (Diamant, 1992: 184, 86) along with a strong technological focus on developing new water resources and augmenting supply (Klaphake and Scheumann, 2001: 5). Natural resource management, institutional and societal changes had received too little attention.

Formally, states recommitted themselves to these seminal targets. The 1990 New Delhi Statement announced a new date of 2000 for achieving universal access. It called for a greater focus on institutional and social change and its title - “Some for all rather than more for some” - reinforced the importance of equality and universal basic access. This goal was augmented two years later by a blend of environmental and social targets in Agenda 21,

⁶ *United Nations*, Mar del Plata Action Plan, Resolution II, Plan of Action A Para. 1(b) (p. 68); cf. as well Mar del Plata Action Plan, Recommendations Para. 16(e) (p. 15); Para. 44(i) (p. 31); Resolution II, Plan of Action B Para. 5(a) (p. 69).

⁷ *United Nations*, Mar del Plata Action Plan, Resolution II, Plan of Action A Para. 1(b) (p. 68). Note that this target was first articulated during the Vancouver Conference on Human Settlements in 1976 in the context of housing.

⁸ UN General Assembly, Resolution 35/18 (10 November 1980), Second Committee (Fifty-fifth Plenary Meeting), U.N. Doc. A/RES/35/18 para. 1 (emphasis added).

adopted at the 1992 Rio Earth Summit (Pilardeaux, 2005: 316). Engineering and water resource development paradigms gave way to an acknowledgment of scarcity and the new approach of water resource management together with a re-affirmation of the importance of the “satisfaction of basic needs”.⁹ A number of structural targets and indicators were set in relation to water resource management (relating to laws, institutions and programmes) while numerical or cardinal targets were set for sustainable urban development (although, somewhat bizarrely not for rural areas). By the year 2000, states were to ensure that all urban residents have access to at least 40 liters per capita per day of safe water; 75 percent of them were provided with on-site or community facilities for sanitation; and 75 percent of solid waste was collected and recycled or disposed of in an environmentally safe manner.¹⁰ In relation to solid waste and wastewater management, industrialized countries (by 1995) and developing countries (by 2005) were to ensure that at least 50 percent of all sewage, waste waters and solid wastes were treated or disposed of in conformity with national or international guidelines; with a rise to 100 percent by 2025.¹¹

During the cascade of international summits in the 1990s, some of these targets were formally repeated with a particular focus on striving towards universal access. In the 1990’s Children’s Summit there was a commitment to “promote” universal access to safe drinking water and sanitation for children;¹² in the 1995 Fourth World Conference on Women in Beijing, states committed themselves more emphatically, to “ensure that clean water is available and accessible to all by the year 2000” and “restore polluted water systems and rebuild damaged watersheds.”¹³ However, water and sanitation were omitted from the OECD’s (1996) International Development Goals (IDGs), while other areas such as health and income poverty figured prominently in them.

These targets were notable but they were not the only game in town: the 1990s targets were largely overshadowed by a paradigm of privatization and cost recovery. The adoption of the Washington Consensus led to a dramatic shift in donor funding and paved the way for the encouragement of water privatization from the late 1980s. This was preeminent in the World

⁹ *United Nations*, Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992, A/CONF.151/26/Rev. 1 (Vol. I), Annex II, Agenda 21, Chapter 18.8.

¹⁰ Standards were also to be set for quantitative and qualitative discharge of effluents.

¹¹ These latter targets are not found in Chapter 18 of Agenda 21 on water, but rather in Chapter 21 and solid waste and sewage, highlighting perhaps a lack of an integrative approach.

¹² *World Declaration on the Survival, Protection and Development of Children*, Agreed to at the World Summit for Children on 30 September 1990, para. 20(2).

¹³ Report of the Fourth World Conference on Women, Beijing, 4-15 September 1995, para. 266 (1).

Bank's *Water Resources Sector Strategy* in 1993, which emphasized the importance of economic incentives and efficiency and laid the ideational framework for the subsequent push for privatization across international development policy and practice.¹⁴ The dominant conception of water as an economic good was clear in the decade's most influential and oft-cited international resolution concerning water: the 1992 Dublin Principles.¹⁵ Principle 4 provided that "Water has an *economic value* in *all* its competing uses and should be recognized as an economic good." Whereas the Dublin Principles recognize the "basic right of all human beings to have access to clean water and sanitation at an affordable price", this is carved out as an exception to the general economic principle. This should be contrasted with Agenda 21 where water is predominantly characterized as a "social good".¹⁶ The effects of this shift in policy were immediate. In the period from 1990 to 1997, there was an 8,400 percent increase on private sector investment levels in comparison to the previous sixteen years (Silva et al., 1998). The policy met however with resistance in many countries and its popularity declined within a developmental context in the following decade for a number of reasons. But as Kanbur (2011: 1) notes, "While trade liberalization was perhaps the archetype disagreement on development strategy in the 1980s and 1990s, in the 1990s and 2000s this role has been taken over by water privatization and the passions it arouses".

The Millennium Development Goals: Progress or Regress?

It was in this context that the MDGs emerged. At first glance, access to water was a prominent feature of the new framework. It represented only one of two targets in the Millennium Declaration of 2000 that emphasized both *physical* and *economic* accessibility: by 2015, "the proportion of people who are unable to reach or to afford safe drinking water" was to be halved. Two years later, this was complemented by the inclusion of a target for sanitation. States at the World Summit on Sustainable Development in Johannesburg added

¹⁴ *Water Resources Management Strategy*, World Bank, 1993. Note that the language was partly opaque in this document due to an internal struggle within the Bank: see G. Pitman, *Bridging Troubled Waters: Assessing the World Bank Water Resource Strategy* (Washington D.C.: World Bank, 2002), p 2. Note that the causes of the privatization shift are more complex: in the late 1980s, the United Kingdom had privatized its water sector providing a model for the process; and French and other multinationals sensed the potential for new markets and international expansion.

¹⁵ Dublin Statement on Water and Sustainable Development, International Conference on Water and the Environment: Development Issues for the 21st Century, UN Doc. A/CONF.151/PC/112 (1992). It was not a formal government declaration, but the statement was endorsed by international experts from a hundred countries. It is also a formal UN document.

¹⁶ It states that water users should be charged appropriately only beyond the requirements of basic human needs and even speaks of free access to water for the indigent. *United Nations, Agenda 21*, Chapter 18.8.

the target of halving the proportion of people who do not have access to basic sanitation to the MDGs.¹⁷

However, these commitments and indicator design are problematic for a number of reasons. First, the universalism and ambition of Mar del Plata and New Delhi was quietly sacrificed. Whereas global targets cannot be completely idealistic, and population growth and economic conditions represent real constraints, it is remarkable that the commitment to universal coverage in 1990 for a rather basic social good has been extended some time into the future beyond 2015. This normative regression is curious when access to water and sanitation has been progressing constantly since 1976.¹⁸

Second, the visibility of water and sanitation in the Millennium Declaration was subsequently lost. In the process of setting the MDGs, carried out by a small group of representatives of the UN Secretariat, the IMP, OECD and the World Bank, an effort was made to “harmonize reporting on the development goals in the Millennium Declaration and the international development goals”.¹⁹ In this configuration the target on water (and then sanitation) was buried and submerged under a broad Goal 7 on Environmental Sustainability. In essence, the structure of the OECD’s IDGs was used and the Millennium Declaration was fitted around it.

Third, the affordability criterion in the target was dropped without explanation. One of the architects of the MDGs, Vandemoortele (2011: 4), justified the exclusion on the basis that it could not be measured:

[I]n an age where numbers prevail, it was decided that only those targets with agreed indicators and with robust data were to be included - but not without making some exceptions. This is why the quality of education, the affordability of water, good governance and human rights (i.e. civil and political rights) and several other areas covered in the Millennium Declaration were not included in the MDGs.

This omission is normatively and statistically troublesome. The importance of affordability had been recognized in a long line of international standards²⁰ and high prices of water create

¹⁷ *United Nations*, Johannesburg Plan of Implementation, Para. 8, 25.

¹⁸ See discussion in Sections 1 and 3.

¹⁹ Road map towards implementation of the Millennium Declaration, A/56/326, Annex, para. 1.

²⁰ In 1992, States and others in the Dublin Principles stated that “it is vital to recognize first the basic right of all human beings to have access to clean water and sanitation at an *affordable price*”. Principle 4, Dublin Statement

unenviable spending choices for the poor (COHRE, 2006; Smets, 2009). Often the price for informal access is significantly greater than the cost of formal access, sometimes consuming up to 30 percent of household budgets of households in informal settlements. Consumption of basic water (5 to 20 litres) is highly price and income inelastic: water is central for human life and health. This makes it very difficult for the poor to avoid paying for the good even if it means using a significant portion of income and exceeding national affordability standards by 1000 or 2000 percent.²¹ This belies one assumption among some policymakers that that people still “have access”, even if they spend a huge proportion of their income on water and sanitation.

An indicator that hides such stark injustices, by only measuring formal physical access to water, is unlikely to meet criteria of construct validity and policy relevance. Affordability plays a prominent role in standards that are sensitive to fairness and justice concerns. The human rights framework offers such a holistic perspective. In its General Comment No. 15 on the right to water, the UN Committee on Economic, Social and Cultural Rights explained that, “The direct and indirect costs and charges associated with securing water must be affordable, and must not compromise or threaten the realization of other Covenant rights.”²² In essence, this means that households must not be put in position of having to make trade-offs between basic water and food consumption, schooling for children and medical care costs.

Moreover, research shows that data can be generated that allows for measuring affordability. At a regional level, OECD (2003) analyzed household water expenditure against income across a range of OECD countries and disaggregates them according to income classes, regions and size of household. Fankhauser and Tepic (2005) undertook a similar analysis that includes Eastern European countries where they not only found significant differences across countries for mean affordability, but that poorer households in some countries (e.g., Hungary, Russia and Tajikistan) expended significantly high amounts on water services. Hutton (2012) undertook a comprehensive study demonstrating that basic data sets for measuring

on Water and Sustainable Development, International Conference on Water and the Environment: Development Issues for the 21st Century, U.N. Doc. A/CONF.151/PC/112 (1992), emphasis added.

²¹ For an overview of national and international standards, which are often based on proportion of budget used for water consumption, see (Krause, 2009).

²² *General Comment 15, The right to water* (Twenty-ninth session, 2002), U.N. Doc. E/C.12/2002/11 (2003), para. 12(c)(ii).

affordability can be generated. While the datasets may have not perfectly met measurement criteria, they could have been refined.

Fourth, there are question marks over the choice of indicators to measure access to water. In the absence of acceptable 1990 baseline data, the MDG architects settled on new indicators, ‘improved drinking water source’ and ‘improved sanitation facility’, which were to be monitored by the WHO/UNICEF Joint Monitoring Project (JMP) based on household survey data. This was a major achievement in itself: pre-2000 data was largely based on information given by governments and water providers and was measured according to widely differing standards. For instance, acceptable distance to a public water source varied between 50 and 2000 meters and acceptable quantities between 15 and 50 liters of water per day. However, the new global data has been subject to a series of new validity critiques. The MDG target was preceded by the adjective “safe” but water from improved sources may contain chemical and microbial contaminants well above national and international guidelines (Bain et al., 2012; Mboup, 2005).²³ During its Rapid Assessment of Drinking-water Quality in five pilot countries, the JMP found that more than 10 percent of piped sources and 30 to 60 percent of other improved sources failed to comply with WHO microbiological standards (WHO and UNICEF, 2010b: 31). Based on a model that uses limited data on microbial water quality, Onda, LoBuglio and Bartram (2012) estimate that 1.8 billion people lacked access to safe water in 2010 (more than double the official figures). Conversely, the definition for access to sanitation may have been too strict (Bartram, 2008: 283).²⁴ Similarly, sustainability is not captured: the monitoring framework does not capture accurately whether people fall out of coverage after once having gained coverage.

Fifth, the earlier Agenda 21 targets concerning broader water resource and wastewater management were weakly captured or ignored in the Millennium Declaration and the MDGs. In the case of wastewater management, both frameworks were completely silent. The issue is neither covered under environmental sustainability nor addressed under target 7.C related to sanitation. Indeed, the way the sanitation indicator is framed, primarily defined by the nature of technology, entirely ignores the proper discharge, treatment or re-use of excreta, fecal sludge and wastewater from sanitation facilities.

²³ For an overview of national and international standards, which are often based on proportion of budget used for water consumption, see (Langford, 2012).

²³ For example, World Health Organization, *Guidelines for drinking-water quality*, 4th edition, Geneva, 2011.

²⁴ For example, a traditional pit latrine with an earth floor does not score in global monitoring since it lacks a solid floor slab; but such a latrine is ranked as 'improved' by national authorities in Zimbabwe.

In addition, it is important to examine which issues were excluded by both the Declaration and MDGs. Hygiene is a glaring gap.²⁵ This is not surprising given that it has not received much attention in any international policy frameworks nor the mantle of a global target. Arguably, the MDGs are a missed opportunity to boost attention to the issues: indeed, only a few countries have established national targets for hygiene promotion programs (WHO and UN-Water, 2012: 16), and out of the total water, sanitation and hygiene (WASH) expenditure, only about 2 percent is spent on hygiene promotion (WHO and UN-Water, 2012: 29). Menstrual hygiene management, its requirements and impacts are largely overlooked despite the huge implications for gender equality. Overall, hygiene continues to receive limited attention in policies, research priorities and resource allocation. Without addressing and monitoring this third component of WASH, many of the gains through improving access to water and sanitation will not meet their full potential. Evidence shows significant reductions in diarrheal disease and respiratory infections and increased school attendance of girls at the age of puberty together with less social stigma around menstruation (Biran et al., 2012: 3).

Inequality in access to water and sanitation is also poorly captured, representing the MDGs' most significant 'blind-spot' (De Albuquerque, 2012). The downgrading of the water and sanitation targets from a universal goal to a proportionate reduction contributed to this as it decreases the likelihood that the most marginalized groups and individuals will be targeted in service provision. The target does not set incentives for targeting the hard-to-reach, but instead incentivizes the prioritization of 'low-hanging-fruit' to demonstrate quick progress. Halving the proportion of people without access can be achieved without improving the situation for a single person with a disability, living in a slum, or belonging to a marginalized ethnic minority. The occlusion of equality was compounded by two other factors: The targets did not require an even-handed progression (e.g. ensuring equitable progress across income classes and geographic regions) and while indicators were to be disaggregated by urban/rural and gender only the former was done, while other types of inequalities go entirely unnoticed (WHO and UNICEF, 2012b). In this sense, there has been a move away from the spirit of previous declarations: the "Some for all rather than more for some" approach as embodied in the Delhi Declaration or the call for "equitable access" in the Millennium Declaration (Para. 23).

²⁵ Good hygiene practices, including hand-washing with soap and menstrual hygiene management, are crucial for health and well-being and preventing morbidity and mortality.

Impact of the MDGs in the Water and Sanitation Sector

Parsing the current impacts of the MDGs in the water and sanitation sector is a perilous exercise given the methodological challenges and the fact that the period for their achievement is yet to elapse. However, it is possible at least to point to a range of achievement, political, distributive and unintended impacts. Some of these are positive; others negative or non-existent.

Achievement Impacts

In March 2012, the UN Secretary-General Ban Ki-moon announced that the global MDG water target had been met in 2010: 89 percent of the world's population use improved drinking water sources. This exceeded by one percent the 2015 target of halving the proportion of those without water.²⁶ Putting aside for the moment the problems over the minimalistic definition for the water indicator and the exclusion of monitoring affordability, safety and sustainability (see discussion above), this appears to be a significant result. However, the sanitation target has not yet been achieved and is unlikely to be reached by 2015. It is officially off-track and consistently cited as an under-performing target. By 2015 global access to sanitation is projected to slightly rise to 67 percent, significantly below the 75 percent required to meet the target.²⁷

Whether this success with the water target can be attributed to the MDGs is difficult to say. If one takes official figures for the last three decades, the greatest reported rates of improvement are in the 1980s while the reported rate of improvement is the same for the 1990s and the 2000s: 6 to 7 per cent per decade.²⁸ However, the problem with drawing such a conclusion is that the measurement criteria have changed over time, and the survey coverage increased making it very difficult to compare the different decades.²⁹ This would suggest that levels of achievement in the 1990s and 1980s were overstated and the 2000s were understated, as improved methods generally tended to identify malfunctioning water facilities (WHO and UNICEF, 2012: 5). However, the rates of population growth push the other way : it was 19

²⁶ UNICEF/WHO Millennium Development Goal drinking water target met: Sanitation target still lagging far behind, Joint news release, 6 March 2012.

²⁷ Ibid.

²⁸ The 1990 baseline was 76 per cent and access was reported at 83 per cent in 2000. It is a real challenge to gain reliable figures for the baseline in 1980. A number of estimates suggest 60 percent in 1980 which would mean a 16 per cent improvement in the 1980s. It can be calculated from 'X. Access to Safe Water' in United Nations, *Charting the Progress of Populations*, available at www.un.org and also in Fogden (2009). However, this figure is likely to be understated. But even if understated, the efforts in improvement seem to outstrip later decades.

²⁹ Data Table 3, Access to Safe Drinking Water 1970-2008, available at www.worldwater.org.

percent in the 1980s, 15 percent in the 1990s and 12 percent in the 2000s.³⁰ On the other hand, in the 2000s, the population increased in the countries with the biggest gap in access to water, which may understate the impressiveness of the efforts in the 2000s. It nevertheless shows the impressiveness of the 1980s efforts in retrospect where a billion people were estimated to have gained access. Putting this together, one could conclude, at the very most, that that the MDGs made a small contribution in comparison to the 1990s. Fukuda-Parr, Greenstein and Stewart (2013) confirm the likelihood of this conclusion in quantitative analysis: in 78 percent of 126 sampled countries there was an improvement in access to water but only a third of the countries sampled improved at a faster rate in the 2000s than the 1990s.

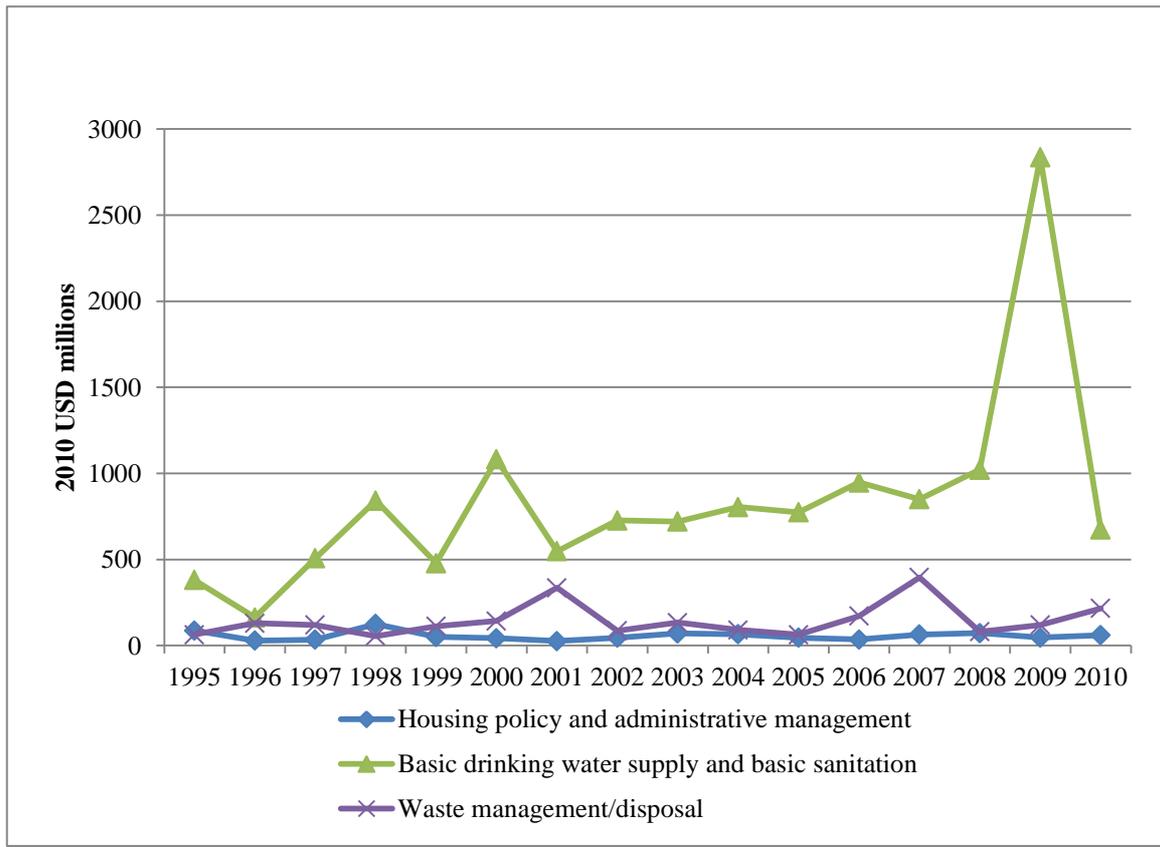
The critical question is then whether the MDGs were responsible for any of the general improvement in these countries as well as halting a possible slow down in others. International donors have claimed at least that MDG-inspired efforts are part of the causal story. They were a leading promoter of the MDGs and aid funding was reallocated towards the social sectors post-2000, representing one of the clearest overall impacts of the agenda (Sumner and Melamed, 2010). As Figure 1 shows, there has been a steady increase in aid to the water and sanitation sector since 2000 (and interestingly no change in relation to the excluded targets on wastewater management). The overall aid commitment to the water and sanitation sector doubled in absolute terms between 1997 and 2008 but declined in relative terms (from 8 to 5 percent) as a share of overseas development assistance (WHO and UN-Water, 2010: 2). In welcoming the news that the MDG target had been met, the European Commission stated:

Between 2004 and 2009, thanks to support from the European Commission, more than 32 million people have gained access to improved water supply and 9 million to sanitation facilities. Financing for water and sanitation programmes, which help build infrastructure for drinking and waste water systems, and provide basic sanitation and hygiene, amounts to almost €400 million per year; programmes are implemented in over 30 countries.³¹

³⁰ http://www.census.gov/population/international/data/worldpop/table_population.php.

³¹ See http://ec.europa.eu/europeaid/what/environment/water-energy/index_en.htm. The ACP-EU Water Facility has supported water infrastructure and supply projects, particularly in rural areas and with a focus on the poorest of the poor and facilitated policy dialogues to improve coordination and cooperation in the sector

Figure 1. Aid to Water and Sanitation Sector



Source: (OECD, 2012; authors' analysis)

Whether these post-MDG shifts in aid allocation and efforts are the primary reason for the target achievement is difficult to know. WHO and UN-Water (2010: 31) find that only a few donors target a significant portion of funding towards *basic* water and sanitation systems,³² which would be more likely to contribute to the achievement of the MDGs. The Special Rapporteur on the Right to Water and Sanitation has also stated that:

[O]nly 42 per cent of aid for these sectors committed between 2006 and 2008 was addressed to least developed and other low-income countries. The share of aid for basic sanitation and water services decreased from 27 per cent in 2003 to 16 per cent in 2008, much greater shares being directed at large systems, which generally do not reach the poorest segments of the population. (De Albuquerque, 2010: para. 20)

³² The European Commission is close to the median average of 25 percent of water sector funding for basic systems: only a minority of countries such as the Netherlands, Denmark, Spain and the United Kingdom, have allocated the majority of funding to basic systems.

A second question mark over the causal connections between target-setting and MDG achievement is how the global targets translate into national targets. Do they actually provide an effective incentive, sanction or motivation for national efforts? The MDGs framework has attracted criticism for its refracted use at the national level. Translating global targets into national targets in a linear fashion penalizes poor countries, favours wealthier countries and does not cohere with resource-based human rights obligations (Easterly, 2009; Langford, 2010; Vandemoortele, 2011). If better-resourced countries can easily meet the targets then it is not clear that the MDG framework provides any extra leverage as a form of accountability. In South Africa, for example, a target of universal access was already set for water by 2008 and sanitation for 2010. The MDGs have permitted the government to regularly announce it has met these international commitments and deflect domestic criticism that it is failing to meet its national targets, particularly on sanitation (Dugard et al., 2014).

On the other hand, the MDG framework does not reward huge efforts undertaken by many Sub-Saharan and other low-income countries. They are marked “off-track” since the MDG logic does not reward significant progress when starting from a very low baseline. The distorted metric for monitoring raises a question about its appropriateness. Indeed, looking at absolute figures, the differences between water and sanitation are not as great: Since 1990, 2.1 billion people have gained access to improved water and 1.8 billion people to improved sanitation, pointing to the fact that the sanitation target is more ambitious than the water target as it started from a lower baseline.

It may be also possible that positive MDG impacts on lower-income countries are actually lost in the one-size-fits-all MDGs monitoring framework. Anderson and Langford (2013) recalculate the MDG rankings of progress by adjusting for a range of resources relevant to provision of water and sanitation.³³ They find that many low-income countries improve their ranking while a range of middle-income countries fall (see Table 1). The most dramatic example of a country climbing the ranks is Ethiopia, which increased access to sanitation from 3 percent in 1990 to 21 percent in 2010. This ranks in only 45th place (out of 79 countries) according to the MDG measure of performance but 2nd out of 79 countries once a resource adjustment is made.

³³ GDP; ratio of ‘disposable national income’ (DNI) to GDP; total population (millions); land area (km²); urbanisation (percentage of total population); and the dependency ratio (the share of population aged 15-64 to the sum of the shares aged 0-14 and 65+).

Table 1. Resource-Adjusted Ranking versus MDG Rankings

Income group	Water			Sanitation		
	N (Size of sample)	Average rank for <u>resource-adjusted</u> measure	Average rank for <u>MDG</u> measure	N (Size of sample)	Average rank for <u>resource-adjusted</u> measure	Average rank, <u>MDG</u> measure
Low income	23	41	51	21	38	52
Lower middle	32	37	36	30	38	35
Upper middle	21	43	35	24	43	33
High	4	50	39	4	47	45
Region						
East Asia and Pacific	9	33	27	9	39	36
Europe and Central Asia	4	34	27	5	43	36
Latin America and Caribbean	21	39	33	23	40	32
Middle East and North Africa	8	51	27	8	27	16
North America	1	71	68	0	.	
South Asia	5	35	31	5	22	34
Sub-Saharan Africa	32	41	49	29	47	55

Notes: Table shows highest/lowest/average rank by income group/region; higher ranks indicate better performer (i.e. 1=best)

Source: Anderson and Langford (2013).

Political Impacts

While the MDGs have originally been designed as a monitoring framework, their greatest utility may be more diffuse and political in nature: It is to elevate and boost urgent or important issues that previously languished without attention, support or financing; to legitimize and undergird the political urgency of addressing poverty (broadly understood); and to provide a useful tool around which actors could achieve consensus, coordinate, act and monitor poverty reduction (Langford, 2012; Gauri, 2012; Sumner and Tiwari, 2009). This may contribute to some positive efforts in terms of achieving the targets (as described above) but the overall ambition for the contribution of the framework is more modest and a complement to other available instruments.

In this respect, and perhaps ironically, the MDGs may have had their greatest impact in the area of sanitation rather than water – an impact that is likely to grow over time. Sanitation has been the poor cousin of water for various reasons: cost, the awkwardness of the theme and a

lack of understanding of its health and economic benefits amongst policymakers and the general public. The boosting effect is clearest here.

The inclusion of sanitation – even if late – had a positive impact by increasing attention and contributing to changing the discourse around sanitation. This was arguably aided by the constant reference to sanitation being one of the most off-track targets (De Albuquerque, 2012: para. 17). In 2008, the UN General Assembly declared 2008 the International Year of Sanitation, for the first time considering the issue delinked from water.³⁴ This was followed up upon with the sanitation drive aiming to redouble efforts to achieve the sanitation target.³⁵ Regional initiatives such as the eThekweni Declaration of the African Minister’s Council on Water also shifted the focus towards sanitation pledging to create separate budget lines on sanitation and aiming to spend 0.5 percent of GDP on sanitation. Highlighting the prevalence of open defecation has increased awareness on its negative health impacts and the need to eradicate open defecation, with some governments initiating campaigns to that extent (De Albuquerque, 2012: para. 17). Aid officials have noted how the MDG target has provided a lever for them to encourage development partners to seek support for sanitation provision.³⁶ However, sanitation is still one of the most off-track targets and the sector remains heavily underfunded. Out of the total funding for WASH, only about one fourth is spent on sanitation, even though the need for sanitation funding often is much greater than for water (WHO and UN-Water 2012: 25, 29).³⁷

Distributive Impacts

As already discussed, the MDGs are not premised on reducing inequalities or ensuring that progress is equally distributed. They do not require or incentivize targeting the most marginalized and disadvantaged. The question here is what was the distributive impact in practice: did the MDGs help spur, spurn or sideline efforts to reduce inequalities in access to water and sanitation? The UN Special Rapporteur on the Human Right to Safe Drinking Water and Sanitation raised the concern in a series of country missions that patterns of exclusion and marginalization remain constant, disadvantaging indigenous peoples, ethnic

³⁴ United Nations General Assembly, International Year of Sanitation, 2008, A/RES/61/192, 6 February 2007.

³⁵ United Nations General Assembly, *Follow-up to the International Year of Sanitation, 2008*, 20 December 2010, A/RES/65/153.

³⁶ Interview with Jean-Louis Ville, Head of Unit D1, EuropeAid. October 2012.

³⁷ Although, it should be noted that most investments in sanitation take place at the households’ level which are not captured very well by the investments monitoring approaches.

minorities, persons with disabilities, women and girls, among others (De Albuquerque, 2012: para. 32).

This was confirmed by quantitative evidence. UNICEF found that the bottom wealth quintile in the world has not gained any of the improvements in access to improved sanitation. In 2011, the JMP went beyond its limited monitoring mandate in the MDG framework and produced a report focusing on “equity”. Geographically, it revealed that 84 percent of the population without access to an improved drinking water sources lives in rural areas (UNICEF, 2010). Other geographic disparities – between different regions of a country, or between formal and informal areas – can be similarly dramatic. Kenya provides an illustration of both: only 22 percent had access to safe water in the North-Eastern Region (which is populated by many Muslim and nomadic groups) whereas in the formal areas of the capital Nairobi 92.6 percent of the population had access to safe water (OHCHR, 2010).

Looking at social disparities, the JMP found that, for instance, in India the poorest 40 percent of the population hardly featured amongst the 166 million that gained access to sanitation between 1995 and 2008 (WHO and UNICEF, 2013). It also confirmed the gendered burden of water collection showing that it is most often women and girls who are responsible (ibid). Examining other stratifiers, it looked at ethnic disparities in the practice of open defecation: In Western Nepal the percentage of those practicing open defecation varies between 39 and 73 percent for different ethnic groups (ibid). Analysis in other countries confirms that ethnic minorities are often among the most disadvantaged (De Albuquerque, 2012: para. 64).

Again, it is difficult to determine the causal link between the distributive impacts and the MDGs. If the MDGs did not exist, would disparities and inequalities in access be the same? What can be said is that the MDGs did not incentivize the reduction of inequalities. If targets and indicators were framed in a different way, if data were disaggregated according to different population groups, such data would at least point to where action is most needed and provide the basis for targeted or appropriate interventions to reach the most marginalized and disadvantaged.

Unintended Impacts

The MDG framework may also create a number of perverse incentives and lead to unintended consequences. First, the use of metrics with a one-off end date creates a motivation to adopt short-term solutions, which may not be sustainable. The lack of social

and environmental sustainability standards contributes, for example, to setting the wrong incentives. With regard to water, it is estimated that a third of the handpumps used in Sub-Saharan Africa are non-functional at any given time (WHO and UNICEF, 2011). This is reflected in a heavy focus on capital investments, and a neglect of operation and maintenance in financial attributions with less than a third of expenditure targeted towards the latter, even though 75 percent of the estimated financing needs for WASH would be for the operation and maintenance of existing services (WHO and UN-Water, 2012: 29).

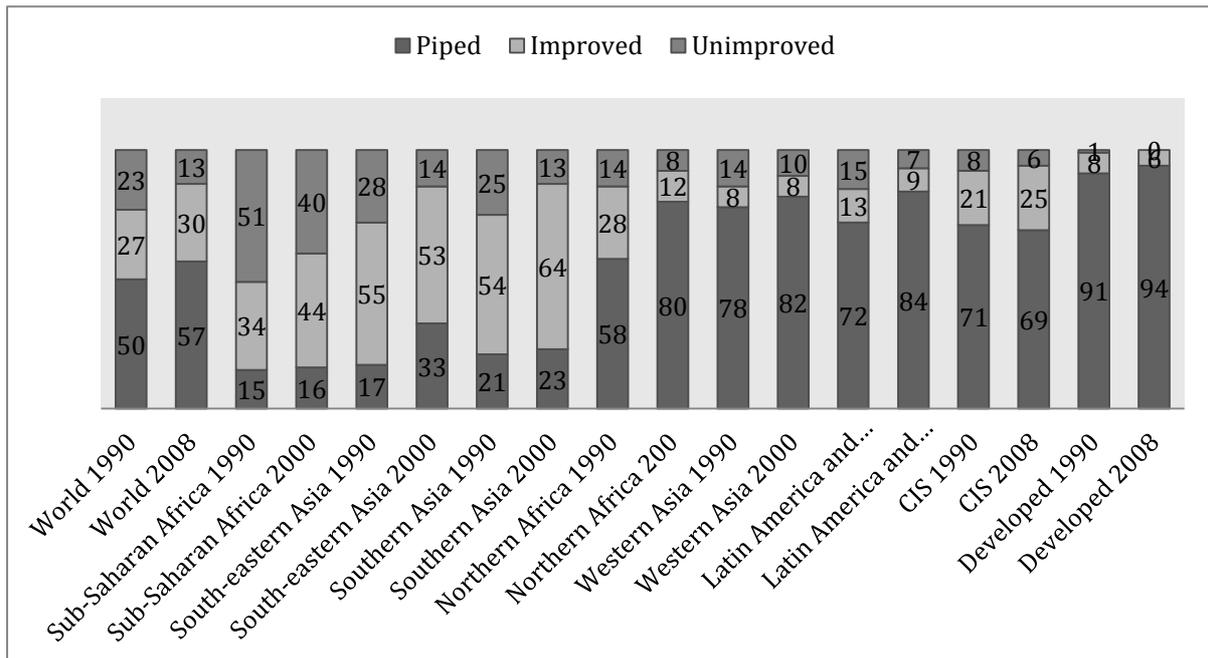
As for sanitation, the target's focus on physical access disregards the management and disposal of the wastewater and excreta produced when accessing such latrine or toilet. This lack of concern results in an estimated 80-90 percent of wastewater produced in developing countries being discharged untreated into lakes, rivers or the oceans (Corcoran et al., 2010: 55). In many major cities, treatment plants are grossly inadequate to deal with the amount of wastewater produced, they are poorly maintained, they do not cover the existing population, let alone a rising urban population. Similarly, where septic tanks are used, these are often poorly maintained and leak into ground water contaminating it with fecal bacteria. Moreover, a lack of infrastructure and services for emptying tanks, challenges with affording such services, and a lack of regulation and incentives often result in contents being dumped into surface waters. As such, the lack of monitoring the management and disposal of excreta often allows contamination to continue unabated. Indeed, Baum, Luh and Bartram (2013) found that incorporation of treatment of sewage in the definition of "improved sanitation" led to a doubling of the sanitation gap to 4.1 billion people.

Second, there is a question as to whether the under-ambitious MDG target for water and sanitation and the choice of minimalistic indicators has undermined the normative, moral and legal expectations of progress in the sector. Target-setting catalyses a reflexive process whereby an indicator reshapes its parent norm. As Davis, Kingsbury and Merry (2012: 19) put it, indicators embody a "theoretical claim about the appropriate standards for evaluating actors' conduct". If an indicator is too loosely matched with a standard or simply achieves prominence, it can quickly take on a normative life of its own. Such a development may be compounded by the announcement that the world has met the water target, when in fact, it has only met the indicator: billions of people remain without access to safe (and affordable) water.

This minimalism is entrenched through the binary approach of looking at ‘haves’ and ‘have-nots’ (Bartram, 2008). While this simple ‘pass–fail’ method of global counting is “simple, robust and easy to present” it is plagued by significant weaknesses (ibid: 183). The goals provide no clear motivation for countries near the top or the bottom of the international spectrum to tackle their water and sanitation challenges – the architecture of the global targets does not recognize the range of steps they could take to improve water and sanitation; nor does it meet the standards of adequacy in international human rights law (Langford et al., 2014). WHO and UNICEF (2008: 284) demonstrate positive developments for a range of poorer countries if one uses a ladder of progress instead of a binary cut-off: open defecation declines in all regions (24 percent to 18 percent) and particularly in Sub-Saharan Africa (36 to 28 percent). For wealthier and transition countries, the low ambition of the MDGs hides the lack of progress while officials may also be perplexed as to what further steps they can take to improve sanitation to meet international standards (Bartram, 2008).

The importance of moving beyond the binary straightjacket of the MDG targets can be seen in a comparison of *unimproved access*, *improved access*, and *piped access* (see Figure 2). It is evident that for Sub-Saharan Africa, a clear challenge remains in elevating people from unimproved to improved (40 percent remain in the unimproved category according to 2008 figures). However, for other regions, there is at least an equal challenge in moving from improved to piped access. For instance, in South-Eastern Asia, between 2000 and 2008, the unimproved number was halved and the number of piped doubled, but a slight majority of the population still are with improved access. In Southern Asia and Western Asia, there has been no progress in piped access at all; in Northern Africa and Latin America, there has been a dramatic positive change, while in the former communist states of the CIS there has been regression. Even in developed countries, access to piped water is notably below universal access. Interestingly, in the MDG framework, many of these poorly performing States would be marked as ‘on target’ as the unimproved gap has been reduced by 50 percent.

Figure 2. Regional Progress for a Water Ladder: 1990-2008



Source: WHO and UNICEF (2010a).

Conclusions and Alternatives for the Post-2015 Agenda

Quantitative target-setting has a long history in the water and sanitation sector. In its seminal phase in the 1970s and 80s, it was highly ambitious and correlated with a surge in expansion of access. But it was mired by disillusion over the failure to fully achieve the target (although this assessment seems too pessimistic in retrospect). These initial targets may also have had the perverse effect of encouraging overly technical solutions, which promised quick but unsustainable solutions – a factor formally recognized in the 1990s. The second surge of committed target-setting in the MDGs in the 2000s has been marked by less ambition but more triumphalism, with the meeting of the water target. However, it is not clear if the MDG water and sanitation target had a significant impact on rates of progress and political impacts in the area of sanitation. But this sudden decade of success with the water target should engender real suspicion as to whether the bar was set too low, in terms of the access benchmark to be achieved and the indicators selected. The reductionist philosophy of the MDGs seems inappropriate when the international community has recognized since the 1990s the complexity of water and sanitation and the importance of tackling the interrelated issues of quality, affordability, equality and sustainability. This highlights the need to address

as much as possible in any future framework unintended consequences and perverse incentives.

As to the post-2015 agenda, the space is relatively open for different approaches: Until now, states have communicated only general criteria through the 2012 Rio Declaration.³⁸ These criteria evince a preference for a delimited set of mostly quantitative commitments but also the need to ensure balance, legitimacy, national relevance - all problematic areas in the current agenda, including with the water and sanitation targets. For indicators, the Rio Declaration suggests that simplicity and measurability (a restricted number of commitments with available data and statistical robustness) has to be balanced against the need for indicators that will spur and align with needed action and policy.

One way of proceeding with this measurement question is develop more holistic criteria for indicator selection and target design. Langford (2012) suggests eight criteria against which proposals should be weighted: (i) relevance of indicator to theme and target; (ii) saliency/communicability; (iii) data availability and comparability; (iv) robustness; (v) action-orientation; accountability, and national realities; (vi) universally applicability; (vii) equality-sensitivity; and (viii) the existence of perverse incentives. The emphasis on relevance and avoiding perverse incentives could ensure that decision-makers turn their minds more broadly to the way in which indicators interact with normative demands and will be interpreted and used in practice. The inclusion of equality, accountability and universal applicability criteria can highlight more substantive, often human rights-oriented demands.

This is not to suggest the use of questionable data and measurement methodology when other criteria score highly. The point is that measurement is not solely about finding the holy grail of the perfect indicator.³⁹ It not only overlooks the ideational and incentivizing objectives of target-setting but also the dangers that different indicators carry perverse incentives and normative consequences. Moreover, the lack of data is not by accident, but often reflects low priority accorded to particular issues. For instance, while it is true that monitoring access to water and sanitation in slums is a notorious challenge, there is equally a perception that

³⁸ The framework should be “action-oriented, concise and easy to communicate, limited in number, global in nature and universally applicable to all countries while taking into account different national realities, capacities and levels of development and respecting national policies and priorities”, para. 247. It should also “be consistent with international law”, incorporate all dimensions of sustainable development in a balanced and coordinated manner and be implemented “with the active involvement of all relevant stakeholders”, paras. 246-7.

³⁹ For a defense of a narrow approach, see Vandemoortele (2013).

people living in slums “do not count”, which leads to poor measurement. Thus, statistical criteria should not be deprioritized but a broader understanding of measurement demands that a more flexible approach should be taken (for example, not always requiring backdated baselines) and seeing the opportunity of improving and expanding data sets. Data should be seen as a servant, rather than a master.

Currently, there are a range of concrete alternatives to the current agenda that meet the critiques and seek to provide technically feasible targets and indicators (Hutton, 2012; Langford, 2013; Langford and Winkler, 2013; Luh, Baum and Bartram, 2013; WHO and UNICEF, 2012a). Proposals include:

- Ensuring *universal applicability* by adopting higher benchmarks (e.g., universal piped water access for some regions) and/or making benchmarks contingent on rates of progress or a country’s or region’s available resources.
- Ensuring targets are *equality-based* by requiring equitable progress (e.g., on the basis of wealth, level of service, or formal/informal/rural area) and expanding national measurement to capture discrimination on the basis of individual characteristics such as sex, disability, health status and age and group markers such as ethnicity, race, colour, religion, language, and caste.
- Improving the *water quality* dimension of the existing ‘improved’ indicators or introduce new international or national targets that capture water quality, particularly microbial quality and the existence fecal contamination as well as fluoride and arsenic. In regard to environmental sustainability, future targets could build on the range of the ‘forgotten’ ones from the 1990s, particularly on wastewater management.
- Setting a water and sanitation *affordability* target that requires recurrent expenditure on water and sanitation as proportion of household income to meet an international or regional standard. This could be complemented by the development of an ancillary index that ensures official utility rates for water and sanitation are affordable.

Such a holistic approach not only ensures greater relevance with normative standards and demands; it constrains the potential for perverse incentives – water and sanitation services have to be provided in a manner which is affordable, safe, sustainable and on the basis of equality. However, there is likely to be competition for place in the post-2015 agenda. An overarching criterion of *urgency or importance* would suggest targets and indicators that

address the most alarming nature of water and sanitation injustice: e.g., lack of basic access, stark inequality and dangerous pollutants such as fecal bacteria and arsenic. However, a general requirement of *universal applicability* would suggest broader indicators that are relevant on a global scale including in middle and high-income countries: affordability, access to piped water, wastewater management and water resource management. How one chooses between and within these categories should ultimately be solved by *democratic politics*.

However, the answer to progress does not lie solely within the water and sanitation sector, particularly in relation to physical and economic access. Different studies show that other factors are critical. Krause (2009) for example, finds that the level of broader democratic governance and more specific water governance (including user participation and presence of civil society groups) has a higher correlation with accessibility to water and sanitation than the level of GDP. Wolf (2009) comes to similar conclusions and finds the degree of press freedom particularly significant. GDP itself tends to highly correlate with provision of water (Anand, 2006) and to a lesser extent, sanitation, while water-sector specific factors such as level of water resources are not significant (Anderson and Langford, 2013) nor public-private partnerships (Krause, 2009). This suggests that goals and targets on democratic governance and economic growth may be just as important in improving access to water and sanitation.

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