

Convergence in access to safe water and adequate sanitation:

An analysis across countries and time

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ABSTRACT. This short note reports that developing countries have tended to converge in terms of percentage of population having access to safe drinking water and adequate sanitation between 1980 and 1993-1996. It suggests that this represents a good message, but no reason for complacency. Enormous efforts are still needed until all people on earth can enjoy access to safe drinking water and adequate sanitation.

KEYWORDS: Access, convergence, disease, drinking water, sanitation.

Introduction

For many developing countries there has not been much progress during the last two decades in two of the most important environmental conditions their people face. While the percentage of people with access to safe drinking water and adequate sanitation has almost steadily increased since the beginning of the International Drinking Water Supply and Sanitation Decade (1980-1990), which was initiated by the United Nations Water Conference in Mar del Plata, Argentina, in 1977, progress in absolute numbers has been rather modest and sometimes even non-existent. The World Health Organization (WHO) estimated that in the mid-1970s some 1.9 billion people had no access to safe drinking water and some 2 billion no access to adequate sanitation. Twenty years later still over 1.1 billion people worldwide are deprived of access to safe water and the number of people without adequate sanitation in place actually rose to 2.5 billion (UN Ecosoc 2000). The vast majority of these people live

in developing countries, of course. It is estimated that even at current rates of progress, which are far from certain to be maintainable, it would be 2050 in Africa, 2025 in Asia and 2040 in Latin America and the Caribbean by the time that all people are served with safe drinking water (ibid.). The situation is even bleaker with respect to adequate sanitation.

These poor environmental conditions have severe ill effects on the health of affected people. They lead to the spread of diseases such as amoebiasis, cholera, diarrhoea, dysentery, malaria, schistosomiasis, typhoid fever as well as roundworm and guinea worm infections. It is estimated that diarrhoeal diseases, including dysentery, alone annually kill over 2 million children before their fifth birthday (Warner 1997). Briscoe (1992, p. 16) suggests that due to hygiene-related diseases almost one in ten children dies before his or her first birthday. Esrey et al. (1991) suggest that to provide all people with access to safe drinking water and adequate sanitation could lead to substantial reductions in the incidence of diseases: 200 million per year fewer diarrhoeal episodes, 76,000 fewer dracunculiasis cases, 150 million fewer schistosomiasis cases and 75 million fewer trachoma cases.

Convergence: a good message

This short paper shows that there is at least one good message in analysing the developments over the last two decades. The message is that those developing countries which faced the worst conditions in 1980, tended to make the greatest progress since. This holds true both for access to safe drinking water and adequate sanitation and is true for whether one looks at the urban or, if less clearly visible, the rural situation. In other words, since 1980 some convergence took place: the gap

between developing countries with relatively poor and countries with relatively good environmental conditions has decreased over time.

Figure 1 plots the share of a country's urban population that had access to safe drinking water in 1980 on the abscissa against the improvement in percentage points relative to the period 1993-1996 on the ordinate (exact year depends on data availability). All 1980 data are taken from WRI (1994), all data from the period 1993-1996 are taken from World Bank (2000). The number of developing countries included, which again depends on data availability, is 64 ($n=64$). It can be clearly seen in looking at the trend line that countries with relatively poor conditions in 1980 tended to have higher percentage points improvements up to 1993-1996. Figure 2 shows the same for urban access to adequate sanitation ($n=56$). Again, convergence is clearly visible. Figure 3 is like figure 1, but for the population in *rural* areas ($n=58$). While convergence is not quite as dramatic as for the urban population, it is still clearly discernible. The same holds true for rural access to adequate sanitation as shown in figure 4 ($n=46$).

<INSERT FIGURES 1 TO 4 HERE>

Why is this convergence a good message? First, from a utilitarian viewpoint investments should take place where the utility they generate is highest. As investments in countries with extremely poor conditions are likely to generate the highest utility, convergence of environmental standards is in concordance with an increase in world social welfare, at least if judged from a utilitarian point of view. Second, from an egalitarian perspective convergence is good news as it reduces inequities in access to an important life resource. Third, from a humanitarian

viewpoint convergence is to be welcomed as the fate of the people suffering from the poorest environmental conditions is improved relatively most.

Convergence is thus one of the few good messages around and it has remained unnoticed by scholars of the field. But is it real or merely a statistical artefact? With the help of detailed case studies, Jonsson and Satterthwaite (2000) provide a fundamental critique of safe water and sanitation statistics. They argue that ‘international statistics and many national statistics greatly overstate the extent to which urban populations are adequately served with water and sanitation’ (p. 1). This, they suggest, is partially the result of creative accounting, but more importantly the result of inappropriate criteria for the definition of safe water and adequate sanitation access, where, for example, often people are categorised as adequately served even if several hundreds of them share a poorly maintained standpipe containing contaminated water. If their critique is correct, then much of the progress, which has been achieved, in terms of increasing the share of populations served will turn out to be even more modest still and the situation with respect to absolute numbers of people served will be quite bleak. Importantly, however, the convergence result is not likely to be severely affected by this critique. This is because there is absolutely no reason to assume that those countries with very poor conditions in 1980 engaged more in creative accounting or applied more inappropriate accounting criteria than countries with better starting conditions.

How can convergence be explained? Why might countries’ conditions with respect to access to safe water and adequate sanitation converge over time? A more definite answer to this question needs to await further research. Initial testing showed that there is no significant correlation with population growth rates and only weak correlation with income growth. At this point I can merely speculate. One possible

explanation is that countries with very poor standards might have a greater incentive to improve their situation and might be able to attract more generous outside funding. Another explanation could be that countries with relatively better conditions find it harder and harder to achieve further improvements as they face steeply rising marginal provision costs.

No reason for complacency

Does the good message of convergence mean that there is reason for complacency? Far from it. The progress achieved in terms of convergence and, more generally, in terms of a higher share of population having access to safe water and sanitation has been severely hampered and at times been defeated by population increases. These environmental conditions can only be considered as solved once all countries have converged on nearly 100% access to safe drinking water and sanitation for all people both in urban and rural areas. For this to happen, investments in water and sanitation facilities must be stepped up. Public investment in water and sewerage infrastructure has actually increased in developing countries from about 0.25% in the 1960s to almost 0.5% of GDP in the 1980s. However, these forms of investment still fall far short of investments in power generation and transport, which have been estimated at well above 1.5% of GDP in the 1980s (Serageldin 1994). Currently, it is estimated that developing countries spend some US\$ 10-25 billion of public money annually combined with an additional US\$ 25 billion spread over the period 1990 to 1997 from private sector investments. From the official development assistance (ODA) only about 6.6% are earmarked for water and sanitation. Because of decreases in ODA in real terms over the last decade or so, this amounts to a mere US\$ 2.9 billion in 1996 (UN Ecosoc 2000). Clearly, these funds need to be substantially increased if the fight

for safe water and sanitation is taken seriously. Whether this is likely to be achieved is rather doubtful though.

It is not just about the overall amount of money available, however. There is much evidence that costly subsidies for water and sanitation benefit predominantly the rather well off in developing countries who could afford to pay the full price for the service, leaving the poor with the choice of either consuming polluted water and experiencing inadequate sanitation or paying exorbitantly high prices (up to 50 times the price for piped water) to private providers. These providers cannot take advantage of economies of scale involved in pipe provision and instead provide water by person or vehicle and sometimes exploit the lack of alternatives which poor people face (Briscoe 1992; Serageldin 1994; WSSCC 2000). Some of the additional money needed could therefore in principle be gained by charging higher prices to those who can afford to pay. However, because access to safe drinking water represents a fundamental human right, price increases must not cut off already impoverished individuals from the service provision.

In addition, there is much inefficiency apparent, with public water utilities providing high-cost, low-quality services. Partly this is to be explained with a lack of professional and managerial capacity on the side of the municipalities, which often have few resources available to provide a whole range of services. But corruption and abuse of public services by the political elite often play a role as well. While one need not necessarily agree with the World Bank's conclusion that this calls for a higher involvement of the private sector (Serageldin 1994), there clearly is a case to be made for stricter control and the introduction of efficiency improvement incentives in public sector utilities. Finally, as forcefully argued by WSSCC (2000), there needs to be increased involvement and reliance on the affected people's initiative themselves if

the ambitious aim of its VISION 21 to provide each human being with safe and adequate water and sanitation by 2025 is to be reached. Briscoe (1992, p. 19) is right in saying that ‘providing water and sanitation services to the poor in developing countries is a daunting challenge’. But, if successfully met, it will also be a most rewarding achievement.

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