
Scanning the 2020 horizon

An analysis of trends and scenarios in the
water, sanitation and hygiene sector

Occasional Paper Series 45

Stef Smits, Cor Dietvorst, Jeske Verhoeven and John Butterworth

IRC International Water and Sanitation Centre

The Hague, The Netherlands

August 2011

Executive summary

What will the International Water, Sanitation and Hygiene (WASH) sector look like in, let us say, 10 years from now? Will access to sanitation still lag behind water supply, or will it evolve into a stand-alone sub-sector with its own set of dedicated institutions and organisations? Will aid continue to play a predominant role in investing in WASH infrastructure, or will emerging economies increase their investments in the sector? And, how will trends outside the sector, such as urbanisation or changes in food prices, affect the sector?

For the last decade the Millennium Development Goals (MDGs) have been the main horizon for the sector. All activities have been geared towards their achievement, and progress in the sector has been measured against them. The MDGs are no longer at the horizon; they are in full sight. With a fair degree of confidence, conclusions can be drawn on their achievements or otherwise, and many analyses have been made about their merits and demerits. With that comes the need to scan the horizon to see which new trends are appearing that will affect sector development after 2015, so that new targets can be set, and efforts adjusted.

The need for looking into the future also applies to individual organisations working in the WASH sector. IRC International Water and Sanitation (IRC), a sector think-tank and knowledge centre, is currently developing its next five-year business plan and, as part of that effort, we undertook a horizon-scanning exercise. We used a scenario-based planning approach, commonly used in business development. This method seeks to explore the certainties and uncertainties of one's possible future business operating environment, and to develop strategies that allow reaching one's goals under changing circumstances.

Although the exercise reflects the perspective of IRC, we believe that main trends analysis and scenarios are relevant to a wider audience of sector organisations. We think the sector would benefit if more organisations made use of results of such scenario-based planning exercises for their long-term planning. It is envisaged that the document will be of interest to policy makers, programme managers and researchers at government agencies, international non-governmental organisations (NGOs), donors and resource centres working on WASH programmes with an interest in possible future developments in the WASH sector, and identifying the ways in which organisations can respond.

The document presents 21 trends we consider most critical to WASH sector development. It examines trends both within the WASH sector, as well as those outside the sector which have the potential to impact on the sector. Many of these are updates of factors identified in a similar exercise undertaken five years ago by IRC, prepared by Fonseca and Moriarty (2006). For each of the trends, data is presented and discussed, and summaries made in the form of 21 trend statements. Where there is contradictory evidence, we illustrate the uncertainties associated with those trends.

In general, compared to five years ago, we see little change in the main paradigms employed in the sector, the issues discussed, the stakeholders involved, or the type and level of financing. This is not surprising as reforms take time. Reasons for the slow rate of change are manifold, but include the large number of stakeholders involved, slow rates of technological change, the usual long-term

funding commitments, and resistance to change. However, the WASH sector operates in a dynamic environment of rapidly changing levels of economic development, demographic change and governance contexts that have significant impacts.

In overall terms, it seems quite certain that differential levels of economic and social development will continue between regions and countries. Whereas many African countries are likely to experience high levels of economic growth, most will remain low-income countries for the next decade, with corresponding low levels of access to WASH services. Most countries in Latin America and Asia will consolidate themselves as middle-income countries however, with important pockets of poverty and growing gaps between the relatively rich and poor. Because of their large populations, in absolute terms these pockets of poverty will remain very large in Asia. In that sense, many countries in Asia will still have a huge challenge of providing access to services to the underprivileged sections of the population, particularly with respect to sanitation services. Rapid levels of urbanisation will bring along complicating factors of water scarcity and contamination from disposal of wastewater. A similar situation presents itself in Latin America.

Less certain are the trends that relate to political stability and governance. Global indicators show that the number of failed and fragile states has remained more or less the same over the last decade, as have some governance indicators such as the degree of democratisation and corruption-perception indices. In the next decade we expect a similar number of countries to be plagued by political instability or civil strife. Whereas it is fairly certain that some countries will democratise; others will see setbacks – the details of where and how these might happen are highly uncertain, and are typically the result of unforeseeable and unpredictable events. Democratisation, or setbacks in governance, can have important effects on the WASH sector in the affected countries such as changes in donor funding, political will, or the quality of management of the sector.

Trends in the financing of WASH services are also very uncertain, not because funding flows change from one day to another, but rather because there is very little insight into the size of these funding streams and their component parts. In most countries, donor contributions are starting to be tracked in varying levels of detail. In most countries, government expenditure on WASH can sometimes be reviewed over time, but hardly ever can these figures be compared across countries since contributions from users, NGOs or private investors are typically not reported in a comprehensive manner. We see that donor investments in the sector have gone up over the past five years, but as the effects of the recent financial crisis set in and more questions are being asked about the effectiveness of aid in donor countries, levels of aid will stabilise or may even go down – although we do not expect this to take place drastically. Donors will continue pursuing the aid effectiveness agenda in the WASH sector, following up on the first positive results of these efforts, such as the longer-term commitments that make donor funding more predictable. The reduced levels of aid may be off-set by new entrants supporting the WASH sector, such as non-Organisation for Economic Co-Operation and Development (OECD) countries like Brazil or China, although these may well target specific segments of the WASH sector, such as urban utilities and resource-rich countries. Depending on the patterns of economic growth, fewer countries would be eligible for the type of aid provided by traditional donors. All in all, we expect to see a new aid landscape, the exact contours of which cannot be detailed at this stage.

Changes in issues and approaches in the WASH sector can be predicted with a higher degree of confidence as the time-frame over which new paradigms or approaches are taken up by sector organisations are in the order of magnitude of a decade or more, and can thus more easily be identified and tracked. One of the important changes that we foresee, and about which we are relevantly confident, is that sanitation is becoming more and more a specific area of focus. For a long time it has been neglected, but the realisation that the sanitation MDG will be missed has led a number of organisations to specifically focus on this challenge. Also, the lack of sustainability in rural water supply services will continue to rise on the sector agenda, particularly in those countries that have managed to reach a relatively high level of coverage. The gap in human resources and organisational capacity, particularly at decentralised level, is another limitation to WASH services delivery, and one that is too big to be fully addressed in the next decade. Another trend that is already underway, and which we foresee will make a positive contribution to the WASH sector, is the development of information and communication technology (ICT) tools for the WASH sector, particularly for monitoring, accountability and impact assessment.

Based on these trends we developed four possible scenarios, representing diverging futures for the WASH sector. The idea is for these to inform the development of a set of strategies – in our case strategies for IRC – but, other organisations are encouraged to use the analytical framework in this paper to inform their own strategies. In order to achieve our vision, we want to take account of these uncertainties in the future. As a sector organisation with a niche in knowledge management and facilitating sector change, active in a limited number of countries and working with a specific set of partners and funders, we will not only be impacted by general trends, but also by specific developments in our focus countries and in the priorities of our funding agencies. With that in mind, and using insights from the 2006 scenario exercise, four distinct scenarios were developed to visualise the future to 2020. We will use these to develop our business plan 2012-2016, and to ensure appropriate iteration over time for our work to remain relevant.

The four scenarios are summarised as follows:

- **Scenario 1: Two steps forward; one step back for the sector.** A number of countries, including ones where IRC concentrates its efforts, experience a rocky ride of political and economic downturn, followed by improvements in governance. Bilateral and multilateral aid are reduced both in countries where things go well and show economic growth, and in countries with political instability. As funding becomes scarcer, and some governments are left to pick up the bill of increasing access to water and sanitation, the importance of sound financial management increases. Although the key issues IRC has been advocating resonate well, IRC's capacity to carry out its operations is severely interrupted in some countries.
- **Scenario 2: New players in a less stable environment.** A number of countries, including ones where IRC has been concentrating its effort, experience a rocky ride of step-wise improvements in governance, interchanged with set-backs. Others experience an economic boom, including some of the new entrants to the aid sector. While bilateral and multilateral aid continues more or less on its current course, the new entrants drastically change the aid landscape, filling some gaps but also contributing to a more disorganised sector. While this offers opportunities, IRC's operations may be at times interrupted.

- **Scenario 3: Towards a post-aid WASH sector.** Many countries where IRC has been working, enjoy a prolonged period of political stability combined with economic growth. In view of continued economic growth, aid is gradually reduced and concentrated on the poorest countries, fragile states and pockets of poverty. Water scarcity becomes a worldwide concern as a burgeoning middle class increases its water demand for food and industrial products, while efficient water resources management remains neglected. Demand for IRC's service will change in focus, as may possible funding opportunities.
- **Scenario 4: A multi-polar WASH sector.** Many countries, including ones where IRC has been working enjoy a prolonged period of political stability combined with economic growth. This results in some of the better off, non-OECD countries investing in neighbouring and/or resource-rich countries, including in WASH, while traditional donors are reduced to a niche role in fragile states and developed countries. With many new players, financing WASH will become even more haphazard. While this may provide opportunities, it is expected to also create challenges for IRC.

The document concludes with reflections on how IRC has used these trends and scenarios to inform its strategic choices and the development of its business plan 2012-2016. The analysis confirms the strategic direction taken to date over the past few years; and it has made risks and drawbacks of these choices more explicit.

Careful monitoring of trends and scenarios is required, as well as an iteration of plans and proactive engagement in debates on the future WASH agenda.

Finally, we call upon other sector organisations to undertake similar exercises, not only to support individual organisational development, but also so to ensure a contribution to a better understanding of what will be required within and from the WASH sector as we near the 2015 MDG target date and beyond.

Table of contents

Executive summary	2
List of Tables	7
List of Figures.....	7
Acronyms.....	8
1. Introduction.....	9
1.1 Trends analysis and scenario building.....	10
1.2 Trends analysis and scenario-based planning in IRC.....	10
1.3 Structure of the document.....	11
2. Conceptual framework and methodology	12
2.1 Conceptual framework.....	12
2.2 Methodology	12
3. Trends.....	15
3.1 International development	15
3.2 Access to WASH services	25
3.3 Financing WASH services.....	28
3.4 Dutch development cooperation policy.....	37
3.5 Information Communication Technologies (ICT)	38
3.6 WASH content, issues and approaches	43
4. Scenario building	52
4.1 Looking back at past scenarios	52
4.2 Defining a vision for the WASH sector	54
4.3 Grouping trends in terms of importance and uncertainty.....	55
4.4 Scenarios for 2020.....	57
4.4.1 Scenario 1: Two steps forward; one step back for the WASH sector.....	60
4.4.2 Scenario 2: New players in a less stable environment.....	61
4.4.3 Scenario 3: Towards a post-aid sector	62
4.4.4 Scenario 4: A multi-polar sector	64
5. Reflections	66
6. References.....	68

List of Tables

Table 1	Economic status of selected countries where IRC concentrates its efforts.....	16
Table 2	Degree of urbanisation and tipping point.....	19
Table 3	Water scarcity status of selected countries in which IRC works.....	22
Table 4	Changes in the Democracy Index: selected IRC donor countries and countries where IRC concentrates its efforts	23
Table 5	CPI index and rank of selected IRC donor countries and countries where IRC concentrates its efforts	24
Table 6	Trends in water and sanitation coverage (2008) in selected countries where IRC.....	27
Table 7	Aid dependency in selected countries where IRC concentrates its efforts	29
Table 8	Sources of investment for capital and operation and maintenance expenditure in Africa (US\$ billions annually).....	30
Table 9	Investment needs in water and sanitation.....	30
Table 10	Comparison between total aid committed to water and sanitation and humanitarian aid	33
Table 11	Connectivity scorecard for selected countries	39
Table 12	Sector and development agencies and their use of social media	42
Table 13	Indicators of sustainability of rural water supply in selected countries.....	45
Table 14	Capacity gaps in the water sector in selected countries	47
Table 15	Countries recognising the right to water and sanitation.....	51

List of Figures

Figure 1	Matrix for prioritising external factors according to importance and uncertainty.....	13
Figure 2	Where do the poor (living on less than US\$1.25/day) live (2005)?	17
Figure 3	Rural share of population living on less than US\$1.25/day	18
Figure 4	Towards a better representation of urban and rural.....	20
Figure 5	Degrees of water scarcity	21
Figure 6	Percentage of free, partly free and not free countries	23
Figure 7	Use of improved sanitation facilities.....	26
Figure 8	Regional distribution of the 884 million people not using improved drinking water sources in 2008, population (million).....	26
Figure 9	Trends in sanitation and drinking water aid commitments by recipient income category, 1998-2008.....	32
Figure 10	Relationship between coverage and donor aid (average annual commitment 2006-2008, constant 2007 US\$) per capita	33
Figure 11	Trends in aid commitments for water and sanitation, according to different types of purposes	34
Figure 12	Estimated % of broken down handpumps in Africa	45
Figure 13	Grouping of trends according to their degree of importance and level of uncertainty....	57

Acronyms

AWG	African Working Group [of the EUWI]
AMCOW	African Ministers' Council on Water
BRIC	Brazil, Russia, India, China
CLTS	Community-led Total Sanitation
DFID	[British] Department for International Development
DGIS	<i>Directoraat-Generaal Internationale Samenwerking</i> [Directorate-General for International Cooperation, the Netherlands]
DoL	[EU Code of Conduct on] Division of Labour
EUWI	European Union Water Initiative
GDP	gross domestic product
GLAAS	Global Annual Assessment on Sanitation and Drinking-Water
GIZ	<i>Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)</i> [German Society for International Cooperation]
HDI	Human Development Index
ICT	information and communication technology
ICT4D	Information and Communication Technologies for Development
IFAD	International Fund for Agricultural Development
IRC	IRC International Water and Sanitation Centre [the Netherlands]
ITU	International Telecommunications Union
IWA	International Water Association
JMP	Joint Monitoring Programme [for Water Supply and Sanitation]
MDG	Millennium Development Goal
MUS	multiple use services
NGO	non-governmental organisation
O&M	operations and maintenance
ODA	overseas development assistance
OECD	Organisation for Economic Co-Operation and Development
RWSN	Rural Water Supply Network
SACOSAN	South Asia Conference on Sanitation
SWA	Sanitation and Water for All
SWAp	Sector Wide Approach
USAID	United States Agency for International Development
WASH	Water, Sanitation and Hygiene
WIN	Water Integrity Network
WHO	World Health Organization
WRR	<i>Wetenschappelijke Raad voor het Regeringsbeleid</i> [Scientific Council for Government Policy, the Netherlands]

1. Introduction

If a participant attending the 2nd World Water Forum in The Hague at the very start of this century (in 2000) had travelled through time to the Stockholm World Water Week ten years later, we do not think s/he would have had major difficulty recognising the current debates and discussions. Many of the concepts and underlying debates in 2000, such as community management, hygiene promotion and appropriate technologies, are still valid and equally current in 2010. While the thinking and the nuances of debates in each of these areas have developed, there has been no quantum leap that might surprise our time traveller. Of course, there would be new things.

The first thing s/he would have to catch up with is that we no longer have a WatSan (Water and Sanitation) sector, but a WASH (Water, Sanitation and Hygiene) sector. One of the main references that might be new to our conference attendee is the Millennium Development Goals (MDGs), which would only be formulated a few months later (while the target on sanitation would only be added two years later at the World Summit on Sustainable Development in Johannesburg in 2002), and have since then been a key point of reference at many such events. Other new acronyms that may be unfamiliar to the traveller include CLTS (Community-led Total Sanitation) and MUS (Multiple Use Services); s/he might have heard about SWApS (Sector Wide Approaches) in 2000, but in 2010 s/he would hear much more a debate about its application in the WASH sector. Maybe the traveller would be surprised not to hear any presentation focusing on privatisation at the 2010 World Water Week, while it was one of the major controversies in 2000. Ten years on, non-governmental organisations (NGOs) and the private sector have gone out of vogue as water service providers in many countries.

Outside of the conference halls, the changes might be much more astonishing. Having just bought his/her first chunky cell phone before going to the 2nd World Water Forum in The Hague, participants in Stockholm in 2010 now use their iPhones and Blackberrys to check their email, get the latest news, and share files. Having just seen the financial crises in Asia, Russia and Brazil in 1998, s/he might be surprised to now see that much economic power has shifted to the BRIC (Brazil, Russia, India and China) countries. In 2010, s/he probably would not have believed it if people told her that many countries in Africa, Asia and Latin America would see a decade of extremely high economic growth, and that by 2010, countries like India and Brazil would be providing their own development assistance.

The question is whether, 10 years ago, our traveller would have been able to predict what the water sector and the world around her would look like a decade later. Unless she was lucky, the answer is no. Few could have predicted the 9/11 bombings in the United States of America and their security implications; nor could the most savvy of financial experts have foreseen the financial crisis of 2008/2009. Few optimists would have guessed that Ghana would achieve middle income status by 2010. But other more certain trends were probably discernable at the time, even if only to well-informed specialists. Studies presented at the 2nd World Water Forum in 2000 showed the trend in increasing water scarcity due to population growth and rising wealth. And ICT experts might have predicted broad developments in mobile phone and Internet technology, though perhaps not predicting when free telephone calls by Internet would be commonplace, nor when the iPhone would be launched.

1.1 Trends analysis and scenario building

Understanding how the future might look is important for all businesses so they can anticipate changes in terms of the goals they set for themselves, the niches they seek out, and the strategies they may follow to achieve goals and minimise risks. The systematic analysis of trends, with corresponding future development scenarios, has been an important tool in this. The oil company Royal Dutch Shell pioneered much of this work to plan its corporate strategies in view of the certainties and uncertainties, and risks of tomorrow's world¹. Other companies and organisations have followed, employing similar methods. The need for such analyses applies also to WASH sector organisations such as IRC. Predicting future developments is about trying to correctly interpret and appropriately respond to and/or lead developments both inside and outside the sector.

As the imaginary situation above shows, there is a certain degree of predictability in terms of the future. Some trends are very likely to continue in the same direction as they have in the past. For example, one might conclude that the WASH sector has a high degree of inertia when it comes to conceptual development. The main concepts, values, beliefs and methods (i.e. its underlying paradigm) that guide the sector have not changed profoundly over the past two to three decades (though incremental changes have occurred), and one can anticipate this is likely to continue into the next decade as well. New approaches that have been adopted on a fairly wide scale, such as decentralisation and community-based management have undoubtedly yielded positive results, but probably way below the expectations of its original proponents.

Other trends are highly uncertain. Economic growth is a typical example where past results are no guarantee for the future. Developing a 10 year economic outlook for a country or region is fraught with high degrees of uncertainty. Finally, there are completely unforeseeable and unpredictable events, called "black swan" events, after the popular book by Taleb (2007). These "unknown unknowns", to quote Donald Rumsfeld², do not come out of any existing trend, but are the result of events with a low probability that may put a whole chain of high-impact events in motion. Natural disasters, like the 2010 earthquake in Haiti, or major political events such as 9/11, are typical examples. And who would have thought that a student setting himself on fire in Tunis in December 2010 could put in motion a chain of events throughout the Middle East? Such events do not necessarily have a direct effect on the WASH sector, but they might, and would be sufficient reason to argue for increasing the resilience of WASH delivery systems.

1.2 Trends analysis and scenario-based planning in IRC

IRC has also been employing trends and scenario analyses, to inform WASH and water resources planning in specific countries or districts, for example in various governorates in Middle Eastern countries (Moriarty, et al., 2007), and for urban water management in a number of cities across the globe in the SWITCH (Sustainable Water Management Improves Tomorrows Cities Health) project (Batchelor, 2011, cited in Butterworth, McIntyre and da Silva, in press). In addition, IRC used

¹ See, for example, van der Heijden, 1996.

² Borrowed from Donald Rumsfeld's (United States Secretary of Defense, 2001 to 2006 during President George W. Bush's term) statement in a press briefing last February 2002 in reference to the possibility of Iraq having weapons of mass destruction.

the approach in its own organisational development. Five years ago IRC undertook an exercise in identifying trends and scenarios affecting the WASH sector up to 2015 (Fonseca and Moriarty, 2006). The analysis of the challenges and opportunities facing the sector was used as a basis for reviewing IRC's business and contribution to the sector. Specifically, it served to inform the strategic choices in IRC's business plan: 2007-2011.

Currently, IRC is preparing a business plan for the period 2012-2016. A new review of sector trends and scenarios was undertaken in order to support the development of the business plan – in particular, to examine whether some trends have developed as expected, and the implications for the WASH sector. In addition, new trends have been identified that we now consider relevant for future scenarios for the WASH sector and IRC's possible response. We believe that debates on trends and scenarios are not only relevant to IRC, but to the sector as a whole. The IRC therefore aims to use this document to share our analysis of trends and scenarios more widely to support debate and decisions on how the sector might respond to its challenges in a more coordinated and sustainable way.

1.3 Structure of the document

The document is structured in the following way:

- **Section 1** contains the **introduction** to this document.
- **Section 2** provides a **conceptual framework** for trends and scenario analysis, as well as the **methodology** we have used for this exercise.
- **Section 3** presents the **trends** that we currently believe are the most important, backed by evidence available to us, but realising that in many cases comprehensive (especially statistical) information is incomplete or absent.
- **Section 4** presents the resulting **scenarios** from this analysis.
- **Section 5** provides IRC's **reflections**.
- **Section 6** contains the **references** used in writing this document.

2. Conceptual framework and methodology

2.1 Conceptual framework

The present trends and scenario analysis has followed the broad concepts and methodology, employed by Fonseca and Moriarty (2006) – a trends and scenario analysis as part of a broader business plan development process.

In such processes, the following key concepts used are:

- A **vision** is a concise description of a desired future state. The vision provides a picture of how we would like the world (or IRC) to be at some future time.
- A **trend** indicates the tendencies over time of a certain factor, and which can be used to extrapolate consequences of that trend into the future.
- A **scenario** is a description of a possible future situation. It is based upon an analysis of groups of trends and according to key criteria. Usually, there is more than one scenario, because the future is inherently uncertain and unknown.
- A **strategy** is a medium to long-term planning framework for moving towards the vision, within which concrete activities can be identified. A strategy relates to factors we can control – for IRC these strategies include the activities and services we offer, the composition of our staff and so on. A strong strategy allows the vision to be achieved under most scenarios.

This document presents the results of our analysis of **trends and scenarios** in development in general, and the WASH sector in particular. Our **vision and strategy** are elaborated separately in our business plan 2012-2016, which will be placed in the IRC website towards the end of 2011. In describing the trends and scenarios, we do not engage in detailed implications for IRC or the sector. We do, however, briefly focus on the beginnings of implications for strategies in section 5: Reflections.

2.2 Methodology

In order to define and analyse today's trends and scenarios, we have loosely followed the methodology recommended in the following IRC documents: Moriarty, et al., 2007; Batchelor, Smits and James, in press. This consisted of the following steps:

Step 1: Review and formulate trends. We started by reviewing the trends identified in 2006 by Fonseca and Moriarty (2006). For each trend we assessed whether we thought it had continued as predicted from 2006 into the future. If not, we either adjusted or completely reformulated the trend. Some trends proved to be of less importance or interest for the WASH sector than originally thought, and therefore, have been excluded from this updated document. Finally, we identified trends that focused on the internal functioning of the IRC. These were also removed in the interest of maintaining a focus on relevant trends for the WASH sector as a whole.

Once the 2006 set of trends was reviewed we identified new and/or additional trends.³ This was undertaken by an internal IRC working group, and the additional trends were reviewed by a group of senior experts.

Step 2: Collect evidence. Various sources of information, including databases, sector reports and studies were reviewed to collect evidence which would either support or disprove each identified trend. This assisted in the formulation of the trend statements. In some cases, contradictory information was found and, in those cases, such contradictions are reflected in the formulation of the trend statement. It must also be noted that we used statistics mainly from global databases and reports compiled by United Nations agencies and civil society organisations. Although some of the statistics are not very reliable they were the best available. Therefore we used them with caution and considered them as indicative data. We took a decision to use global datasets and reports (as opposed to individual national statistics) in order to work with data that is comparable across countries.

Step 3: Define a new vision. We defined a vision for what we want to achieve, both for the sector and for IRC, by 2020. We did this through a series of brainstorming sessions and discussion meetings with senior staff where we used the previous IRC vision as a starting point on which to develop and/or streamline the current version.

Step 4: Rank trends according to levels of uncertainty and importance. For scenario building, it is necessary to differentiate between trends that are more certain and those that are less certain or uncertain; and trends that are more important and those that are less important. More certain trends can be relatively easily anticipated. In terms of strategy and business plan development, these trends are easier to take cognisance of. Some of the most uncertain and most important factors are also highly improbable. Experience has shown that it is these unforeseeable factors that are more likely to disrupt plans.

In order to analyse the trends systematically, they were classified according to Figure 1, where each trend was placed in the quadrant we considered most applicable.

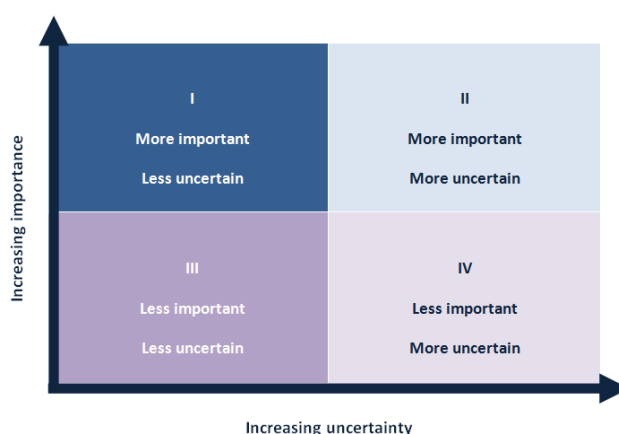


Figure 1 Matrix for prioritising external factors according to importance and uncertainty
 Source: Schwartz, 1991.

³ While most new trends identified are important to the WASH sector as a whole, some trends with specific importance to IRC were also identified.

Step 5: Look back at past scenarios. In order to inform the scenario development we looked back at the scenarios defined in 2006, and assessed the extent to which, over the past five years, the scenarios were accurately envisaged. We also examined the speed with which changes occur in groups of trends such as financing or ICT. Insights into the speed of change assisted in setting upper and lower limits of possible new scenarios (see next step).

Step 6: Define extremes of spectrum for important and uncertain trends. For the trends classified as “more important” and “more uncertain” we defined the realistic extremes of the spectrum. These were set based on insights obtained through the ranking of trends in step 4, as well as based on the professional judgement of senior IRC staff.

Step 7: Create outline and narrative scenarios. Then, outline scenarios were created by taking all possible combinations of the states of the most important and most uncertain trends. These outline scenarios are sentences which take the combinations of the extreme states of each trend. As they take the extreme states of each trend, they tend to be divergent scenarios from the current situation. In addition to the divergent component of the scenarios, the more certain and important trends were taken to define a “base scenario” of trends and developments of which we are quite certain, and that are common to all four scenarios.

For each of the four, a narrative scenario write-up was developed, combining elements of the base scenario and the specifics of the divergent ones. The narratives aim to look back from a point in time (which we have chosen to be 2020), describing how the future might unfold. The narrative scenarios do not aim to portray any specific future events, but rather give options for how the sector might unfold over the next decade, and how we, the IRC, might respond to those scenarios.

3. Trends

This section presents the 21 trends we identified. The trends are grouped into six categories. The categories of trends are:

- 1 **International development.** These trends include trends in demographic change, politics and economic development. They affect service delivery in the WASH sector as much as they would affect any other development sector.
- 2 **Access to WASH services.** These are trends in access to water and sanitation services for different segments of populations.
- 3 **Financing WASH services.** These trends try to understand the key tendencies in the sources and destinations of funding streams for WASH services.
- 4 **Dutch development cooperation policy.** These trends impact directly on IRC as a Netherlands-based NGO and recipient of funding from the Dutch government's Directorate-General for International Cooperation (*Directoraat-Generaal Internationale Samenwerking*) (DGIS).
- 5 **ICT.** These trends focus partly on trends in ICT development, and primarily on their application in the WASH sector. They are of particular relevance to IRC as an information and knowledge centre.
- 6 **WASH content, issues and approaches.** These trends reflect how the WASH sector is dealing with the key aspects of WASH content, issues and approaches.

Each of the 21 trends is presented in a light blue box under its appropriate category.

Below each grey trend box one or more bullet points are listed which provide “bits of evidence” to support the trend. (As mentioned earlier, some bits of evidence contradict others –and this is pointed out where it happens.)

3.1 International development

Trend number 1

Economic growth and human development

Economic growth and improvements in human development continue across much of the developing world, albeit markedly differentiated between regions, countries and within countries. In spite of the overall average growth, an important part of the world's population continues to live in extreme poverty, most of them located in the rural areas of South Asia and Sub-Saharan Africa, and in populous, middle-income countries.

- Many developing countries have had high levels of economic growth over the past decade. The Economist (2011) shows that the 10 countries with the highest economic growth over the past decade were all in Africa and Asia. The developing world has been, on average, only mildly affected by the economic and financial crisis of 2008-2010 and is recovering well with Sub-Saharan Africa, for example, expected to have an average economic growth of 5.5% over 2011 (IMF, 2011). This trend is likely to continue well into the next decade. Three of the countries in Africa where IRC works (Ethiopia, Ghana and Mozambique), are predicted to be among the top 10 growing economies in the world between 2011 and 2015 (The Economist, 2011). As a result, countries in Asia and Latin America are consolidating firmly as middle income countries, and even some of the first African countries are achieving lower middle-income status (e.g. Ghana). But even with continued economic growth, countries like Ethiopia and Mozambique will continue to remain extremely poor. For them it would take at least a decade of growth at current rates to reach a similar gross domestic product (GDP) per capita as Ghana currently has. A risk for low-income countries is the sharp rise in fuel and food prices, which stands to make a significant impact on many non-oil-exporting countries, and the urban poor in particular (IMF, 2011).

Table 1 Economic status of selected countries where IRC concentrates its efforts

Country	2000 GDP per capita (constant 2008 PPP US\$) Source: UNDP, 2010	2008 GDP per capita (constant 2008 PPP US\$) Source: UNDP, 2010	Income group Source: OECD, 2009
Mozambique	547	838	Least developed country
Ethiopia	571	869	Least developed country
Burkina Faso	988	1160	Least developed country
Uganda	849	1166	Least developed country
Bangladesh	967	1335	Least developed country
Ghana*	1134	1463	Other low income
India	1860	2946	Lower middle income
Honduras	3121	3932	Lower middle income
Indonesia	2952	3994	Lower middle income

Source: Own elaboration (2011), based on UNDP, 2010 and OECD, 2009.

- UNDP (2010b) states that, alongside rapid economic growth, poverty levels are reported to be falling, albeit slowly. Trends and results of this differ across regions:
 - The *Latin America and the Caribbean* region is a middle income region, with on average very reasonable development indicators. Although the gap is narrowing, it remains the region with the *highest levels of income equality*.
 - Many *Sub-Saharan African* countries have often overlooked progress in their Human Development Index (HDI), largely due to gains in education and public health. However, some countries remain stagnant or even have lower HDI values than in 1970, due to falling life

expectancy as a result of HIV/AIDS and conflict. It is the continent with the *highest percentage of poor people*.

- *South Asia* is home to the *largest population (in absolute terms)* suffering from *extreme poverty* as measured by the new Multidimensional Poverty Index: 844 million people. This is also shown in Figure 2.
- *East Asia and the Pacific* region experienced exceptional economic growth that drove a doubling of the region's average HDI value from 0.36 in 1970 to 0.71 in 2010, with five of the "Top 10 Movers" in global HDI improvement coming from this region. *Rising income has been accompanied by growing income gaps*, leading to a more than 20% loss to the region's HDI when adjusted for inequality.

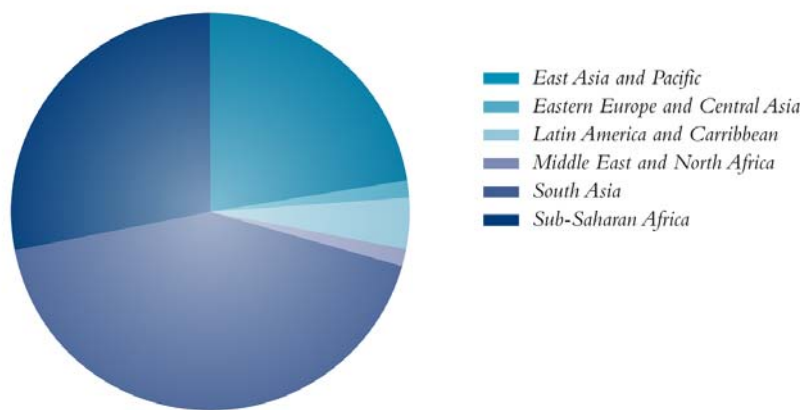


Figure 2 Where do the poor (living on less than US\$1.25/day) live (2005)?

Source: Chen and Ravallion, 2008.

- Three quarters of the world's 1.3 billion or so poor people (the "new bottom billion", according to Sumner, 2010) now live in populous middle-income countries such as India, China, Nigeria, Pakistan and Indonesia. Only about a quarter of the world's poor live in the remaining 39 low-income countries, which are largely in Sub-Saharan Africa (Sumner, 2010). This is a dramatic change from just two decades ago when 93% of poor people lived in low-income countries.
- Of the developing world's 1.4 billion extremely poor people, 70% live in rural areas (IFAD, 2010). This percentage is not likely to change soon, despite widespread urbanisation and demographic changes. Again regional differences abound. In East Asia the rural share of poverty has been reduced to just over 50%, while in most urbanised regions of Latin America, the Middle East and North Africa, the majority of the poor now live in urban areas. In South Asia, South East Asia and Sub-Saharan Africa, by contrast, over three-quarters of the poor live in rural areas, and the proportion is barely declining. In absolute terms, the total number of rural poor has been reduced from 1.4 billion people to about 1.0 billion since the late 1980s, particularly due to improvements in East Asia. This trend is likely to continue. Most of the extreme poor (living on less than US\$0.75/day) live in rural parts of South Asia and Sub-Saharan Africa. Figure 3 depicts trends in the rural share of the population living in poverty in different regions of the world.

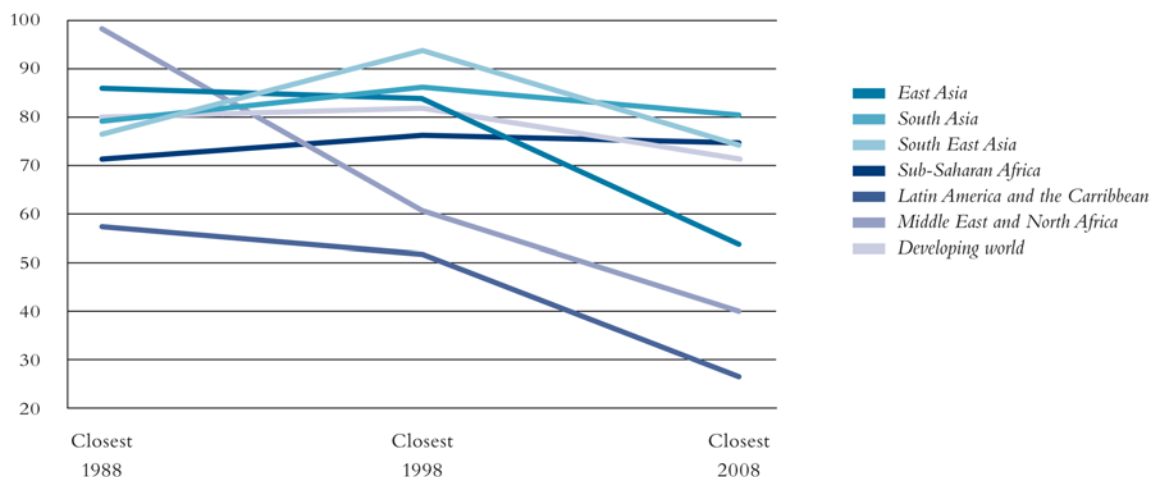


Figure 3 Rural share of population living on less than US\$1.25/day

Source: IFAD, 2010.

- It is reasonably likely that these macro trends will continue, i.e. overall rapid levels of growth in the developing world and emerging countries, differentiated development between the major regions, slowly dropping poverty levels, and a continuation of the urban-rural divide. What is much more uncertain is how these factors will play out at the level of individual countries. The predications for the economy of the country would be a determining factor, and unfortunately that sits outside of the scope of this basic trend analysis.

Trend number 2

Urbanisation

The trend towards urbanisation continues with more people living in urban areas than in rural areas. There is an increased recognition that the urban-rural divide is not so clear cut, with various settlement types in between (small towns, intermediate cities, etc.) and changes in the nature of rural areas. This leads to a further differentiation in WASH challenges.

- 2008 was the first year in which more people lived in cities than in rural areas worldwide, a moment that was given widespread media attention. As shown in Table 2, Latin America has long been very urbanised, and South East Asia is now following. South Asia and Sub-Saharan Africa still have a larger rural population than the urban.

Table 2 Degree of urbanisation and tipping point

Region	Tipping point before 2010 (year)	2010 urban (%)	Tipping point after 2010 (year)	2050 urban (%)
World		50.6		70
MORE DEVELOPED REGIONS				
	Before 1950	75		86
Europe	Before 1950	72.6		83.8
<i>Eastern Europe</i>	1963	68.8		80
<i>Northern Europe</i>	Before 1950	84.4		90.7
<i>Southern Europe</i>	1960	67.5		81.2
<i>Western Europe</i>	Before 1950	77		86.5
LESS DEVELOPED REGIONS				
		45.3	2020	67
Africa		40	2030	61.8
<i>Sub-Saharan Africa</i>		37.3	2032	60.5
<i>Eastern Africa</i>		23.7		47.6
<i>North Africa</i>	2005	52		72
<i>Southern Africa</i>	1993	58.8		77.6
<i>Western Africa</i>		44.6	2020	68
Asia		42.5	2023	66.2
<i>Eastern Asia</i>		48.5	2013	74.1
<i>South-central Asia</i>		32.2	2040	57.2
<i>South-eastern Asia</i>		48.2	2013	73.3
<i>Western Asia</i>	1980	66.3		79.3
Latin America and the Caribbean	1962	79.4		88.7
<i>Central America</i>	1965	71.7		83.3
<i>South America</i>	1960	83.7		91.4
Rest of the world				
<i>North Africa</i>	Before 1950	82.1		90.2
<i>Oceania</i>	Before 1950	70.6		76.4

Source: UN Habitat, 2010b.

- Urbanisation does not only happen in large cities, but also in towns and secondary cities. With that, it is recognised that a simple urban-rural worldview is not useful. Figure 4 (see next page) represents a more realistic depiction of the blurred boundaries between the urban and rural (World Bank, 2009). These different types of settlements also have different demands on and capacities for public services such as WASH.

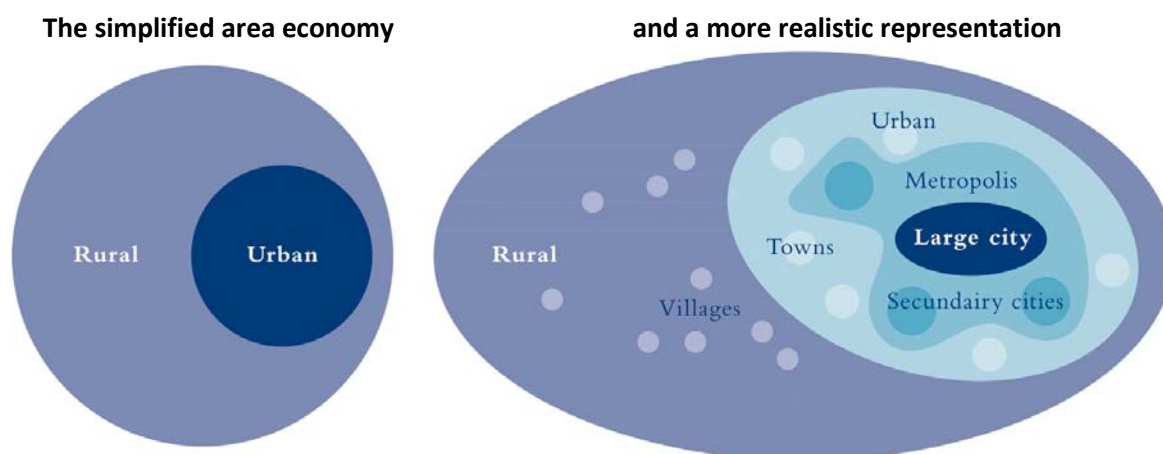


Figure 4 Towards a better representation of urban and rural

Source: World Bank, 2009.

- According to UN Habitat (2010a) cities can be places of inclusion and participation, where it might be easier to provide basic services. But they can be also places of exclusion and marginalisation, as often seen in urban slums with their concentrations of poverty. In Latin America, progress has been made in addressing urban poverty and inequity, even though Gini coefficients within cities still remain high. In Asia, the economic urban divide is widening, whereas in African cities only slow progress has been made in addressing urban poverty. Each year over the past decade, some 22 million people in developing countries have managed to leave slum conditions, thereby surpassing the target of the MDGs on slums (UN Habitat, 2010a).

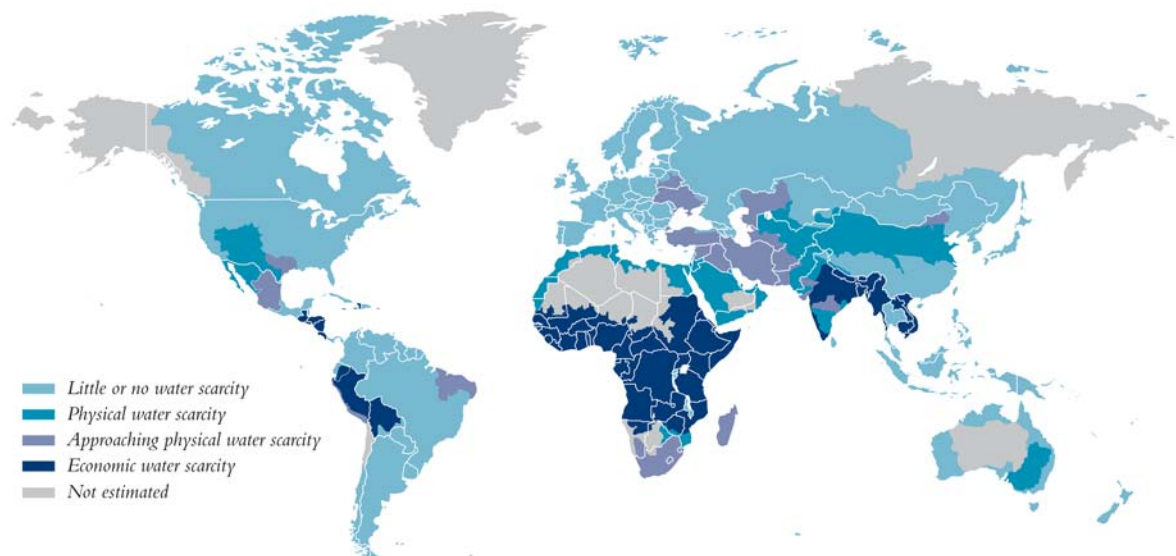
Trend number 3

Water scarcity

Although water scarcity is likely to increase, the rate at which this happens is uncertain as it depends on a wide range of factors and the efficacy of response measures. The impacts are felt most acutely in Asia which is facing physical scarcity, and more locally only in Latin America and Africa, particularly in relation to the water requirements of cities.

- In 2007, more than 1.2 billion people lived in areas of physical water scarcity (i.e. insufficient water for all requirements). These places mainly were in the Middle East and North Africa, and in parts of India, China, South Africa, Mexico and the USA. Most of Sub-Saharan Africa, the Andean region and Central America, and parts of South and South East Asia face a situation of economic water scarcity, i.e. water resources are available, but physical, financial and institutional capacity are lacking to effectively harness water resources for human development (Comprehensive Assessment of Water Management in Agriculture, 2007). See further details in Figure 5.

- Domestic water supply is estimated to account only for around 10% of global water withdrawals, yet it will find itself under increasing pressure from other water uses. Even in areas where physical or economic water scarcity is not an issue, there may still be cases of local competition over water resources between domestic and other uses, for example around cities whose wastewater cannot be recovered or reused at affordable costs.



Definitions and indicators

- *Little or no water scarcity.* Abundant water resources available to use, with less than 25% of water from rivers withdrawn for human purposes.
- *Physical water scarcity (water resources development is approaching or has exceeded sustainable limits).* More than 75% of river flows and withdrawn for agriculture, industry and domestic purposes (accounting for recycling of return flows). This definition – relating water availability to water demand – implies that dry areas are not necessarily water scarce.
- *Approaching physical water scarcity.* More than 60 % of river flows are withdrawn. These basins will experience physical water scarcity in the near future.
- *Economic water scarcity (human, institutional, and financial capital limit access to water even though water in nature is available locally to meet human demands).* Water resources are abundant relative to water use, with less than 25% of water from rivers withdrawn for human purposes, but malnutrition exists.

Figure 5 **Degrees of water scarcity**

Source: Comprehensive Assessment of Water Management in Agriculture, 2007.

The water scarcity status of selected countries in which IRC works, is summarised in Table 3 below.

Table 3 Water scarcity status of selected countries in which IRC works

Country	Scarcity status <i>Source: Comprehensive Assessment of Water Management in Agriculture, 2007.</i>	Observations
<i>Honduras</i>	Economic scarcity	Studies exist pointing to local water resources conflicts and competition
<i>Burkina Faso</i>	Economic scarcity	
<i>Ghana</i>	Economic scarcity	
<i>Ethiopia</i>	Economic scarcity	Often cited as a typical country with extremely low levels of water resources development.
<i>Uganda</i>	Economic scarcity	
<i>Mozambique</i>	Economic scarcity	Only physical scarcity in the Southern part of the country, in the Limpopo and Incomati basins
<i>India</i>	Parts face physical scarcity, others economic scarcity only	Many studies have been done in different parts of India on closure of basins and groundwater development, negatively affecting WASH services.
<i>Bangladesh</i>	Economic scarcity	
<i>Indonesia</i>	No scarcity	

Source: Own elaboration, partially based on the Comprehensive Assessment of Water Management in Agriculture, 2007.

- External factors causing increased water scarcity are manifold, and include population growth, increased demand for water for agriculture, and urbanisation. Equally important is the generally poor management of water resources, resulting in inefficient planning, allocation and control over water use, and compounding the water scarcity problem. The Comprehensive Assessment of Water Management in Agriculture (2007) proposes an ambitious outline for making current agricultural water management practices more efficient (since agriculture is the largest water user group), many of which are based on improved management and governance reforms.
- The combination of the complexity of underlying drivers for water scarcity and the extent to which response measures can be put in place make it highly uncertain to state what the rate of change in water scarcity is. In addition, progress in more efficient water management might be compounded by impacts of climate change (see trend number 19).

Trend number 4

Governance

Trends in governance (e.g. processes of democratisation, and changes in accountability) and stability are complex and unpredictable, with a huge potential for impact on the WASH sector.

- Although over the past decade there has been a slow but steady trend towards a freer and more democratic world, the last few years have seen stagnation in democratisation. The number of countries marked as “Free” by Freedom House (2010) has markedly increased in earlier decades. However, within the last few years there is a worrying trend of stagnation, as shown in Figure 6, and even a reversal in some parts of the world. According to the Democracy Index⁴ of the Economist Intelligence Unit (2010), there is an observed period of stagnation and decline in democratisation.

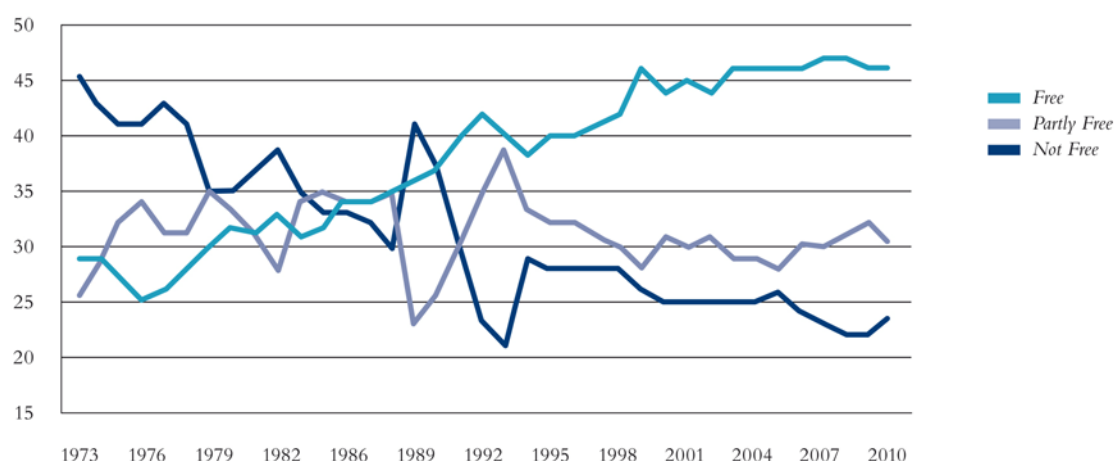


Figure 6 Percentage of free, partly free and not free countries

Source: Freedom House, 2010.

Table 4 provides a Democracy Index of selected countries where IRC concentrates its efforts, based on a composite indicator rating of 0 (lowest) to 10 (highest). A score between 8 and 10 is classified as having full democracy. A score between 6 and 8 is classified as having flawed democracy. A score between 4 and 6 is classified as a hybrid regime. A score below 4 is classified as an authoritarian regime.

Table 4 Changes in the Democracy Index: selected IRC donor countries and countries where IRC concentrates its efforts

Country	Democracy Index		Type of regime
	2008	2010	
<i>The Netherlands</i>	9.53	8.99	Full democracy
<i>USA</i>	8.22	8.18	Full democracy
<i>UK</i>	8.15	8.16	Full democracy
<i>India</i>	7.80	7.28	Flawed democracy
<i>Indonesia</i>	6.34	6.53	Flawed democracy
<i>Ghana</i>	5.35	6.02	Flawed democracy
<i>Bangladesh</i>	5.52	5.87	Hybrid regime

⁴ The Democracy Index is a composite indicator measured based on the existence of free and fair elections, the quality of democracy, the existence of civil liberties and the degree of political participation.

Country	Democracy Index		Type of regime
<i>Honduras</i>	6.18	5.76	Hybrid regime
<i>Uganda</i>	5.03	5.05	Hybrid regime
<i>Mozambique</i>	5.49	4.90	Hybrid regime
<i>Ethiopia</i>	4.52	3.68	Authoritarian regime
<i>Burkina Faso</i>	3.60	3.59	Authoritarian regime

Source: Economist Intelligence Unit, 2010.

- Corruption indices such as the Integrity Index and the Corruption Perception Index do not produce databases that allow for straightforward temporal analyses or identification of trends in integrity, as datasets are only recently becoming more comparable across years. Yet, it is clear that corruption remains pervasive in many developing countries (as can be seen in Table 5).

Table 5 CPI index and rank of selected IRC donor countries and countries where IRC concentrates its efforts

Country	2005		2010	
	CPI	Rank	CPI	Rank
<i>The Netherlands</i>	8.6	11	8.8	7
<i>UK</i>	8.6	11	7.6	20
<i>USA</i>	7.6	16	7.1	22
<i>Ghana</i>	3.5	65	4.1	62
<i>India</i>	2.9	88	3.3	87
<i>Burkina Faso</i>	3.4	70	3.1	98
<i>Indonesia</i>	2.2	137	2.8	110
<i>Ethiopia</i>	2.2	137	2.7	116
<i>Mozambique</i>	2.8	97	2.7	116
<i>Uganda</i>	2.5	117	2.5	127
<i>Bangladesh</i>	1.7	158	2.4	134
<i>Honduras</i>	2.6	107	2.4	134

Source: Transparency International, 2010.

- Democratisation does not always happen in a peaceful manner, nor does it automatically lead to a more stable world, as seen in the Arab Spring events of 2011. In fact, the number of countries in the highest category of the composite Failed States Index according to The Fund for Peace (2010), has increased from 32 to 37 between 2007 and 2010. A failed state is one in which central government is so weak or ineffective that it has little practical control over much of its territory, where there is non-provision of public services, and where widespread corruption and criminality prevail. Failed states might also have refugees, involuntary movement of populations and sharp economic decline. Most of these countries are located in Central and East Africa and in South and Central Asia.
- The interplay between democratisation, good governance and political stability on the one hand, and WASH services delivery on the other, are neither obvious nor seemingly logical. Some democratic countries may have a poorly governed WASH sector, while in some oppressive regimes, good progress has been made in meeting WASH targets. What is clear though, is that fragile states are countries where WASH services delivery is lagging behind the most, as these tend to have much lower levels of investment from both domestic and external sources and,

understandably, much poorer capacity in all aspects of service delivery, as shown in a study by AMCOW (2010).

3.2 Access to WASH services

Trend number 5

Access to water and sanitation

Within the framework of the Joint Monitoring Programme for Water Supply and Sanitation, good progress is being reported on the MDG for greater access to safe drinking water. However, access to basic sanitation continues to fall behind, and will be insufficient to achieve the MDG target. Discrepancies are becoming sharper in access to safe drinking water and basic sanitation between regions, and within countries, between urban and rural areas.

- Tracking progress in access to water and sanitation services is fraught with problems. The common reference, particularly for international comparisons, and including this document – is the UNICEF/WHO Joint Monitoring Programme for Water Supply and Sanitation (JMP) which is the only global dataset providing comparative figures (WHO/UNICEF, 2010). The simplicity of the data compiled by the JMP is also its main critique. Access is of course but one indicator; it does not reflect aspects such as service levels, nor the sustainability of the service. Besides, the JMP takes the MDGs as its reference target, whereas many countries have their own targets (often styled on the JMP definitions), which may be more or less ambitious than the MDGs, or have different definitions of what constitutes access to improved water and sanitation. Beyond 2015 it is likely that many countries will (re)formulate their own targets and definitions. Middle income countries such as many in Latin America find a dataset based on basic service levels of less relevance, and may develop targets and indicators better suited to their context. At the same time, efforts will be undertaken to expand global information systems such as the JMP to include additional data. A major concern is that hygiene monitoring is not included in the JMP; yet it is indisputable that improved hygiene behaviour is vital to gain the benefits of other WASH interventions. Another point of grave concern is that the current set of JMP indicators does not reflect the issue of sustainability of WASH services.
- In spite of these drawbacks, some indicative trends can be teased out. First of all, sanitation targets will not be achieved. According to WHO/UNICEF (2010) figures, an additional one billion people who should have benefited from MDG progress on sanitation will miss out, and by 2015 there will be 2.7 billion people without access to basic sanitation (see Figure 7 on next page). There are great disparities between regions: in spite of noteworthy increases in the use of improved sanitation in North Africa, South East Asia and East Asia, coverage levels still remain low, with the greatest number of people without sanitation in South Asia, but there are also large numbers in East Asia and Sub-Saharan Africa (WHO/UNICEF, 2010).

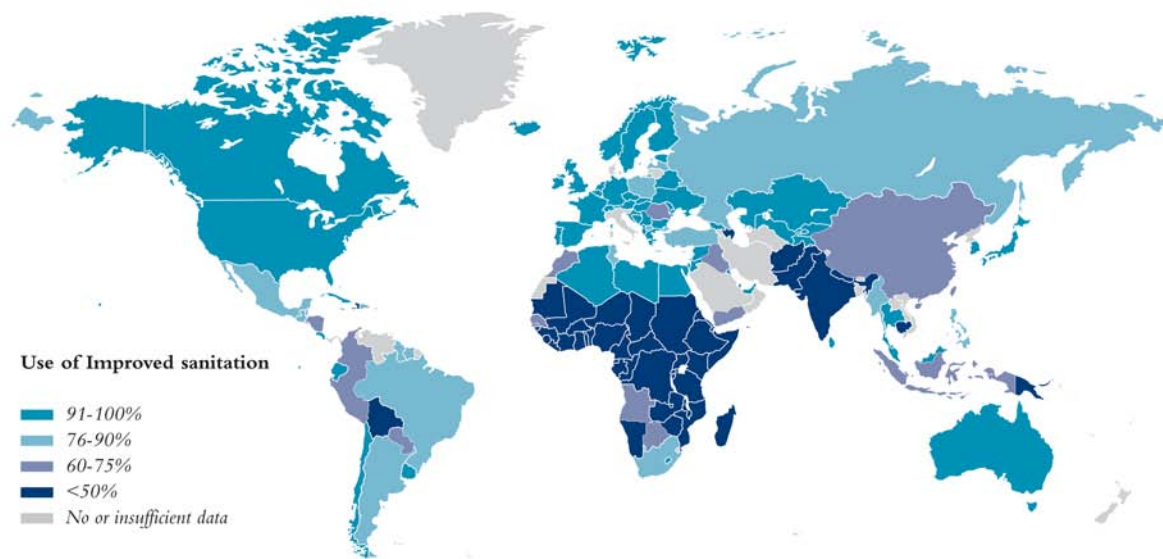


Figure 7 Use of improved sanitation facilities

Source: WHO/UNICEF, 2010.

- Of the people in developing regions, 84% obtain their drinking water from improved sources (WHO/UNICEF, 2010). This still leaves 884 million people in the world who still do not get their drinking water from improved sources (see Figure 8). Sub-Saharan Africa and South Asia account for around two thirds of the number without improved water sources. Sub-Saharan Africa is the only region lagging behind in progress towards the drinking water supply MDG target, with only 60% of the population using improved sources (WHO/UNICEF, 2010).

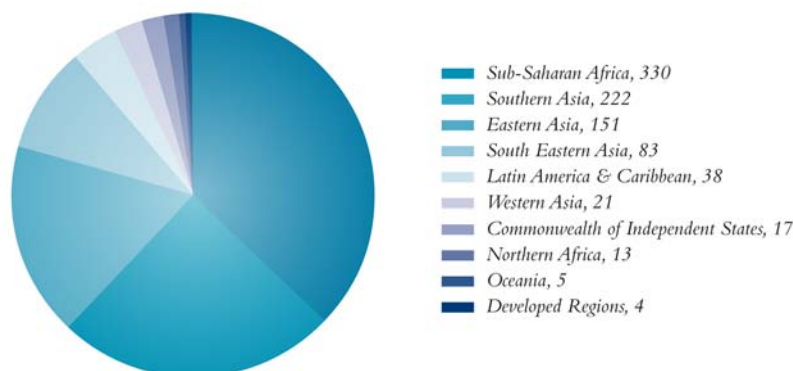


Figure 8 Regional distribution of the 884 million people not using improved drinking water sources in 2008, population (million)

Source: WHO/UNICEF, 2010.

- Large urban and rural disparities continue to exist in access to both basic sanitation and drinking water. An estimated 45% of the world's population living in rural areas uses improved sanitation facilities, compared with 76% of the urban population (WHO/UNICEF, 2010). The rural population without access to an improved drinking water source is over five times greater than that in urban areas. Of the people gaining access to improved drinking water in the period 1990-2008, 59% live in urban areas and, of those who gained access to improved sanitation during the

same period, 64% live in urban areas. The urban-rural disparities are particularly striking in Sub-Saharan Africa. In spite of these increases in urban areas, this is barely enough to keep pace with population growth in urban areas. There is also an equity aspect to this: the poorest segments of the population who remain without access to water and sanitation. And it is likely that reaching those last segments of the population will become increasingly expensive.




- These general trends are also reflected in the countries where IRC concentrates its efforts, as shown in Table 6. The Table below shows generally good progress in reaching the MDG in water supply, with the exception of some African countries. Progress towards the sanitation MDG is, with the exception of Honduras, not on-track.

Table 6 Trends in water and sanitation coverage (2008) in selected countries where IRC concentrates its efforts

Country	Urban population served with Improved Water (%)	Rural population served with Improved Water (%)	Total population served with Improved Water (%)	Urban population served with Improved Sanitation (%)	Rural population served with Improved Sanitation (%)	Total population served with Improved Sanitation (%)
<i>Bangladesh</i>	85	78	80	56	52	53
<i>Burkina Faso</i>	95	72	76	33	6	11
<i>Ethiopia</i>	98	26	38	29	8	12
<i>Ghana</i>	90	74	82	18	7	13
<i>Honduras</i>	95	77	86	80	62	71
<i>India</i>	96	84	88	54	21	31
<i>Indonesia</i>	89	71	80	67	36	52
<i>Mozambique</i>	77	29	47	38	4	17
<i>Uganda</i>	91	64	67	38	49	48

Source: Own elaboration (2011), based on WHO/UNICEF, 2010.

Legend:

-  = **On track:** coverage >95%, or 2008 figure was within 5% of required rate to meet the MDG target
-  = **Progress but insufficient:** 2008 figure was between 5% and 10% of the required rate to meet the MDG target
-  = **Not on track:** flat or decreasing trend between 1990-2008; or 2008 figure was not within 10% of the required to meet the MDG target

3.3 Financing WASH services

Trend number 6

Investment levels in WASH

Few comprehensive overviews are available of financing flows to the WASH sector and of the required costs to meet the MDGs. It is difficult to assess whether current investments are adequate to meet the MDG targets (or other national targets). Most estimates, though, show high levels of underinvestment.

- Few comprehensive overviews on financing flows for the WASH sector are available, particularly at global and regional levels. The GLAAS report (WHO, 2010) and Foster and Briceño-Garmendia (eds. 2010) are among the few consolidated analyses of current investment patterns and needs. In their review of rural water supply, Lockwood and Smits (2011) encountered few complete financial reports at country level of financial flows and needs for the WASH sector. Water and sanitation may be included in government's public expenditure reviews, but these then exclude other sources of financial flows in the sector. Where expenditure reports do exist, these are often difficult to compare because of the different definitions and categories used between countries, and therefore cannot easily be aggregated to arrive at an overall analysis of sector trends. Data presented, therefore, needs to be interpreted with care.
- Consolidated and comparable data on domestic investments by governments from their own taxes is disappointingly scant. The GLAAS report (WHO, 2010) shows that the median of the contribution of 14 developing countries to their WASH sector through national taxes is estimated at 0.48% of GDP. Foster and Briceño-Garmendia (eds. 2010) provide a very detailed overview of investments and needs for various infrastructure sectors including water and sanitation, but for Africa only. This data shows a higher than expected contribution of public investment in water and sanitation than previously thought, particularly in the more resource-rich countries. Although no temporary trends could be observed, it can be expected that as African countries show economic growth, the relative importance of public investments might increase.
- According to the data compiled in the GLAAS report, the overall annual amount of overseas development aid (ODA) for WASH in 2008-2009 coming from multilateral and bilateral donors was US\$7.4 billion (WHO/UNICEF, 2010). In absolute terms, total aid commitments to WASH have increased over the last decade but, as a percentage of all aid, commitments have decreased from 8% to 5% (OECD, 2010). As aid commitments are increasingly fixed in longer-term programmes, the impact of the financial crisis on ODA for WASH will set in with a lag and in a staggered way between donors, and might even be off-set in increases in WASH ODA to reach the MDGs. Joyce, et al. (2010) state that the net sum of the impact is uncertain. However, it is not likely that ODA will either drastically increase or decrease at the global level. It is the least

developed countries that are particularly vulnerable to such changes, as they have less other sources of funding for WASH. In such countries, the slogan “WASH is for donors” often holds true. The fact that the GLAAS report has more and better consolidated data on ODA investments in WASH than government investments is a telling sign in itself. Foster and Briceño-Garmendia (2010) show that WASH is a highly aid dependent sector, particularly in the least developed countries, with still a larger share of investments in capital costs coming from ODA than from public sector. AMCOW (2010) indicates that around 70% of the WASH sector investments in non-fragile low-income countries come from external sources. Although in need of further disaggregation, it is to be expected that this is even more so in the case of WASH services in rural areas. In Asia and Latin America more and more expenditure on WASH comes directly from government or through (soft) loans, as more countries reach middle income status (WHO, 2010). An increasing percentage of aid goes to the least developed countries. Table 7 shows the degree of aid dependence of some of the countries where we work.

Table 7 Aid dependency in selected countries where IRC concentrates its efforts

Country	ODA as a percentage of Gross National Income in 2008	Net ODA received per capita in 2008 (US\$/p/year)
<i>Mozambique</i>	21.6	89
<i>Ethiopia</i>	12.8	41
<i>Burkina Faso</i>	12.6	66
<i>Uganda</i>	11.7	52
<i>Ghana</i>	7.9	55
<i>Honduras</i>	4.1	77
<i>Bangladesh</i>	2.4	13
<i>India</i>	0.2	2
<i>Indonesia</i>	0.2	5

Source: World Bank, 2010.

- Data on investments from other sources is also limited. Foster and Briceño-Garmendia (2010) provide a first estimation of the contributions of non-OECD donors, private investors and household self-finance (see Table 8 on next page). As can be seen, non-OECD donors (e.g. from China or the Gulf States), often touted as a new important donor in Africa still lag behind the traditional donors, and mainly concentrate on resource-rich countries such as Nigeria. Private enterprises do not seem to be important as a source of funding WASH investments. Private investments in capital expenditure by household themselves is very high, representing just below half of all the investments in capital expenditure – presumably expenditure on household sanitation accounts for a large portion of this. No data is included here, nor in the GLAAS report, on transfers by international NGOs and foundations that contribute to the WASH sector. The total size of their investments is not known, nor how it compares to other sources of financing, nor what percentage of their expenditure goes to capital investments and to other expenditure.

Table 8 Sources of investment for capital and operation and maintenance expenditure in Africa (US\$ billions annually)

	O&M	Capital expenditure						
Country type	Public Sector	Public Sector	ODA	Non-OECD Financiers	PPI	Household self-finance	Total	Total
Sub-Saharan Africa	3.06	1.06	1.23	0.16	0.01	2.13	4.58	7.64
Low-income fragile	0.13	0.03	0.11	0.02	0.00	0.16	0.32	0.45
Low-income nonfragile	0.30	0.25	0.78	0.05	0.00	0.45	1.54	1.83
Middle income	2.17	0.15	0.10	0.01	0.00	0.21	0.47	2.64
Resource rich	0.15	0.72	0.24	0.08	0.01	0.52	1.57	1.72

Source: Foster and Briceño-Garmendia, 2010.

- With respect to investment needs, WHO (2010) presents a meta-analysis of cost estimates needed to meet the MDGs. Figures for the global cost estimate between US\$6.7 billion to US\$75 billion/year in order to meet the sanitation and drinking water MDG targets. These estimates cannot be compared with one another because they are based, among other things, on differing assumptions and cost categories. The Foster and Briceño-Garmendia (2010) study arrives at a figure of US\$16.5 billion/year for Africa alone, as presented in Table 9 below.

Table 9 Investment needs in water and sanitation

	\$ billions annually			% of GDP		
Country type	O&M	Capital	Total	O&M	Capital	Total
Sub-Saharan Africa	5.53	11.01	16.54	0.86	1.72	2.58
Low-income fragile	0.98	2.41	3.39	2.55	6.27	8.81
Low-income nonfragile	1.91	4.36	6.27	1.73	3.95	5.68
Middle income	1.19	1.19	2.38	0.44	0.44	0.88
Resource rich	1.47	3.12	4.59	0.66	1.40	2.06

Source: Foster and Briceño-Garmendia, 2010.

- With such scant data and wide ranging cost estimates, it would seem impossible to assess at a global level whether current investments are sufficient to meet the MDGs, let alone to provide sustainable and equitable services. However, most assessments indicate such huge funding gaps that, even acknowledging big margins of error, current funding levels are well below what are required. AMCOW (2010) estimates a funding gap of 8 US\$ million/year, while the Foster and Briceño-Garmendia (2010) study arrives at a funding gap of US\$9.34 billion/year for Africa alone,

or more than total current investments. GLAAS (WHO, 2010) used a more qualitative approach and asked selected countries, whether based on their figures they could assess whether current investments would be enough to meet the MDGs. Most countries reported that funding levels are less than 50% below what is needed. It is assumed that this gap needs to be partially filled by increases in efficiency, as well as by increased spending by the public sector and by users themselves.

Trend number 7

Public spending on capital investment

Most public funds in the WASH sector are spent on new or the upgrade of infrastructure. This is likely to remain as donors and governments prioritise funding towards the construction of new infrastructure to reach the MDGs or other national targets.

- Data from eight external support agencies show that 64% of their aid to drinking water and sanitation is disbursed for new services (WHO, 2010), and only 13% went into maintaining existing systems. The figures from Foster and Briceño-Garmendia (2010) indicate that ODA nearly exclusively goes into capital expenditure. Although other public funds seem to go into operations and maintenance (O&M), it is often hard to distinguish between tariffs paid by users and other investments made by governments in capital maintenance. One of the reasons for this concentrated focus on directing funding towards providing new sanitation and drinking water services is that these funds are directly related to spending towards the achievement of the MDG targets, measured based on coverage indicators. Also, disaggregated data per country shows similar figures. Uganda, for example, has a target of 75% of national government transfers to local government for WASH allocated for the construction of new systems, the remainder of which goes into efforts like rehabilitation, software and overheads. Unfortunately few countries present consolidated information on how their WASH spending is divided between new investments and other recurrent costs. WHO (2010) presents figures from selected countries; and it is clear from these figures that very different definitions and measures have been used to define cost categories in different countries, with obvious difficulties in attempting to compare costs and extrapolate for other contexts.
- This contrasts starkly with the breakdown of funding needs. WHO (2010) estimates that of all expenditure needed for WASH services, 74% should be invested in recurrent capital maintenance of existing services, and only 26% for capital needs for new services. Foster and Briceño-Garmendia (2010) arrive at a much lower figure of 30%. In the common understanding, covering recurring capital maintenance costs is supposed to be the responsibility of the users of the water systems. But, users generally do not carry these costs; and neither are these costs quantified. As WASHCost studies⁵ show, there is need for contributions from taxes and transfers to meet some capital maintenance and support costs, both of which remain absent of financial

⁵ 'WASHCost, a five year initiative, is focused on exploring and sharing an understanding of the true costs of sustainable services. Since 2008, WASHCost has developed new methodologies to better understand and use the costs of providing water, sanitation and hygiene services to rural and peri-urban communities in Ghana, Burkina Faso, Mozambique and India (Andhra Pradesh)' (WASHCost website).

overviews of the sector. Additionally, many countries report that their budgets are too small to hire and retain staff for the WASH sector (WHO, 2010).

Trend number 8

Targeting of WASH investments

Contradictory evidence of the targeting of WASH investments arises, particularly in the countries and population groups with the highest need. There is an observed improvement in concentrating investments to least developed countries, but fragile and failing states with extremely low coverage levels are left behind (“donor orphans”). At the same time humanitarian aid has increased rapidly both in absolute and relative terms, even surpassing ODA for WASH.

- Both domestic investments and ODA for sanitation and drinking water are not necessarily well targeted to where needs are the greatest, i.e. the poorest countries with the highest percentage of un-served populations. Even though the percentage is rising, still less than half of the funding from external support agencies for water and sanitation goes to low-income countries – 42% of total aid (see Figure 9). Similarly, a study by Diaz and Fonseca (2008) shows that European ODA does not necessarily flow to countries with extremely low service coverage. The “donor orphans” (expressed in Euros of ODA/capita) are mainly found among the fragile states, such as the Democratic Republic of Congo and Chad, and large countries where coverage is low, such as Nigeria and Ethiopia. The same point is reflected in WHO’s (2010) GLAAS report (see Figure 10 on next page), which shows that there is no clear relationship between coverage and levels of ODA. In other words, countries where coverage is lowest do not necessarily receive more aid to address this gap.

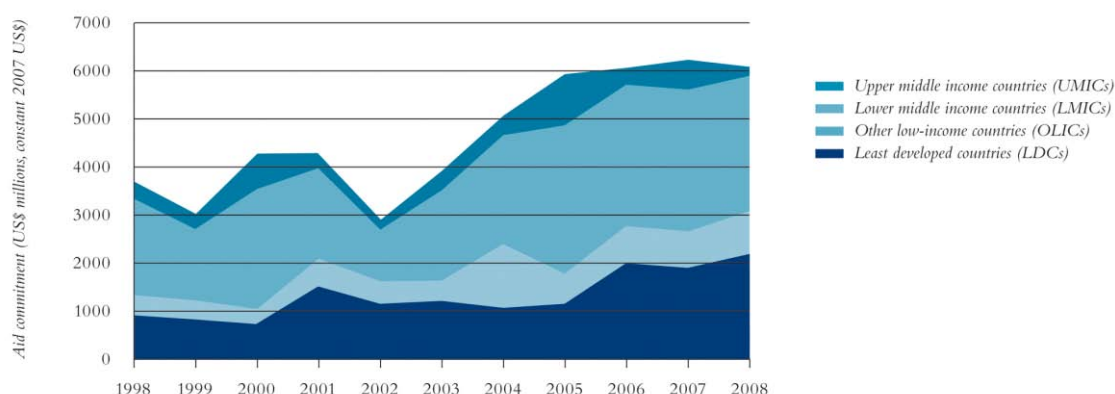


Figure 9

Trends in sanitation and drinking water aid commitments by recipient income category, 1998–2008

Source: Based on OECD, 2010.

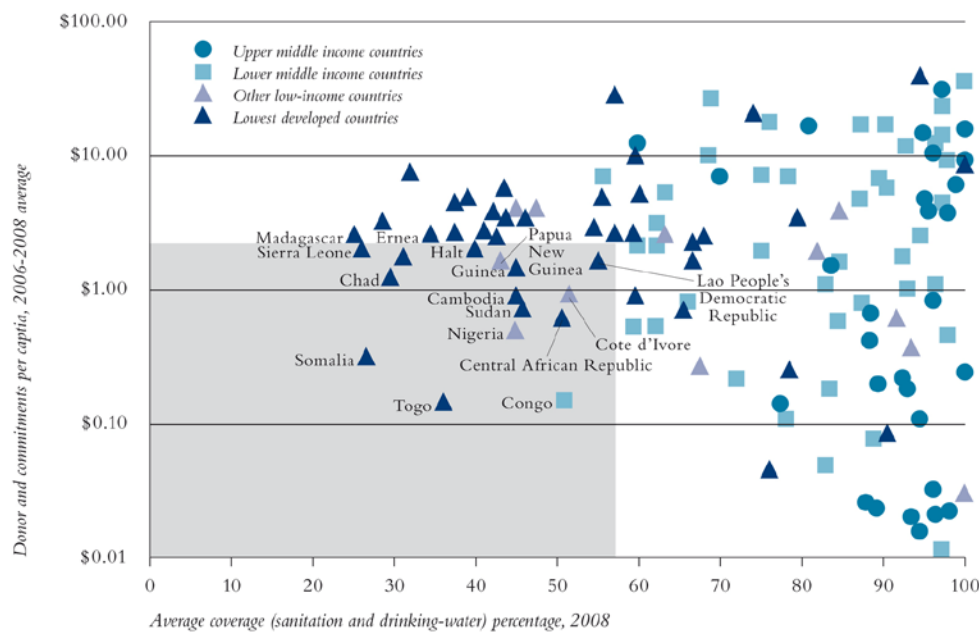


Figure 10 Relationship between coverage and donor aid (average annual commitment 2006-2008, constant 2007 US\$) per capita
Source: WHO, 2010.

- In the last ten years, OECD (2010) estimated that humanitarian aid has increased exponentially in absolute and relative terms, in comparison to total ODA and to aid directed to the water supply and sanitation sector (see Table 10 below)⁶. However, it is not clear whether the OECD estimates also take into account the more recent increase in the percentage of humanitarian ODA dedicated to WASH. As such, disaggregated data was not readily available and figures can be interpreted in many ways. It could also mean that donors are not willing to spend on WASH in complex situations. For example, ODA is assumed to be ineffective in countries with relatively low levels of conflict, but continue to have security and governance concerns. Paradoxically, the same donors are fast to respond when emergency situations break out. There is a choice between investing in relatively stable and better governed low-income countries, where donor money is likely to be used more effectively, and the need to work in the poorest and most fragile places, where needs are greatest but where aid is risky at best, and most likely ineffective at worst.

Table 10 Comparison between total aid committed to water and sanitation and humanitarian aid

Committed ODA	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total bilateral aid to all sectors (2008 US\$ billions)	61.5	58.1	67.9	90.3	100.9	122.0	127.2	133.0	157.0	151.6
Water Supply &	3.6	3.1	2.1	3.2	4.9	6.0	5.8	6.4	7.6	8.5

⁶ Note that this includes ODA to all countries, not only to developing countries, and to conflict areas including Iraq and Afghanistan.

Committed ODA	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
<i>Sanitation (2008 US\$ billions)</i>										
<i>Water supply & sanitation as percentage of aid to all sectors (%)</i>	5.9	5.3	3.0	3.5	4.8	4.9	4.6	4.8	4.8	5.6
<i>Humanitarian aid (2008 US\$ billions)</i>	3.0	2.5	3.6	5.2	6.4	9.6	8.6	9.0	10.9	11.4
<i>Humanitarian aid as percentage of aid to all sectors (%)</i>	4.9	4.4	5.4	5.8	6.4	7.9	6.8	6.8	6.9	7.5

Source: Based on OECD (2010).

- Another element of targeting refers to the percentage of all investments in “water”, in particular, towards basic sanitation and drinking water services. WHO (2010) reported that this type of investment decreased from 27% to 16% over the period 2003–2008 (see Figure 11). In contrast to this, the relative investment in large systems increased. This may mean that the poorest rural populations (see trend number 1) are left out in relative terms. It may also reflect the need to accommodate the more rapidly growing urban population, typically served by urban systems, which also tend to be more expensive in per capita terms.

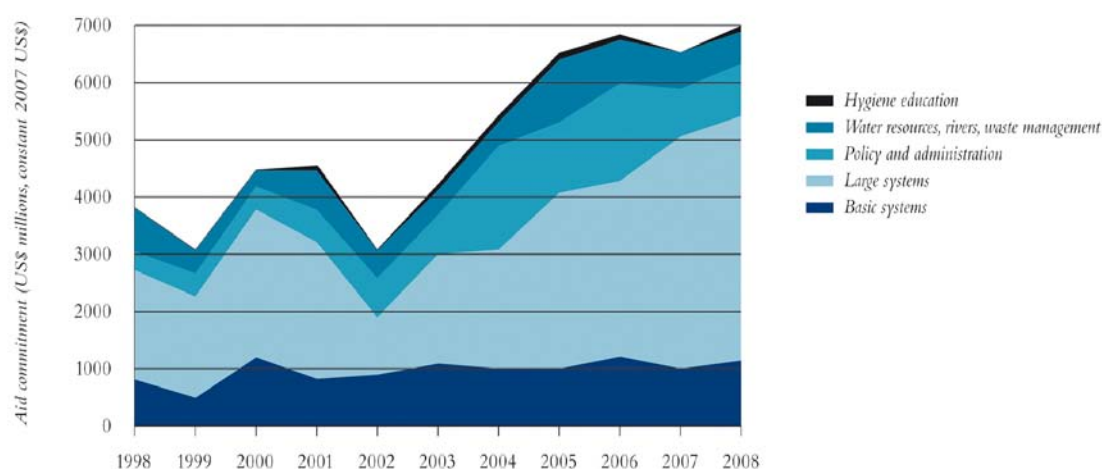


Figure 11 Trends in aid commitments for water and sanitation, according to different types of purposes

Source: based on OECD, 2010.

Trend number 9

Harmonisation and aid effectiveness

Harmonisation and aid effectiveness rise higher on the agenda and efforts are undertaken to operationalise these in the WASH sector. There is a promising level of progress in various aspects, both driven by donors and where some recipient countries take strong ownership. The coming years will see continued efforts to implement harmonisation efforts.

- As follow up to the Paris Declaration and the Accra Agenda for Action, donors are increasing their commitment to harmonisation, coordination and aid effectiveness efforts. This is important considering the large number of donors that operate in some recipient countries (WHO, 2010). WHO (2010) reports that progress made in, for example, untangling aid and donor funding ensures greater predictability at country level, as funding becomes fixed in longer-term projects and programmes. A relatively new development is that donors are increasingly making specific commitments to increasing coverage.
- At international level, there is more coordination between donors, as witnessed in the European Union Water Initiative Africa Water Group (EUWI AWG) and the Sanitation and Water for All (SWA) initiative. The principles of the EU Code of Conduct on Division of Labour (DoL) are starting to be implemented in countries with a large presence of EU donors. Most countries receiving significant amounts of aid organise donor coordination meetings, joint performance reporting, and are using some government procurement systems. However, tackling the cross-country dimension of DoL, and analysing how it could influence targeting of aid, has started only recently. An analysis of the water sector in Africa done in 2010 for the AWG of the EUWI supports the picture of a highly fragmented aid structure as presented by the OECD for global aid. Too many donors are still supporting too many activities in too many countries, resulting in a fragmentation of their efforts.
- Progress is slower in the management of financial flows. Relatively few countries have developed a SWAp mechanism (Pezon, Fonseca and Butterworth, 2010), as many developing countries still do not have the financial management, monitoring and reporting systems in place to satisfy the conditionalities for sector budget support (de la Harpe and Butterworth, 2009). In most countries, as well as among donors, a mix of funding streams is found. A study done by the EUWI AWG in 2008 showed that on average sector budget support represents 29% of EU ODA commitments reported by respondents, while projects and programmes represent 71% (Diaz and Fonseca, 2008). About 21% of EU ODA to the water sector was not coordinated through recipient country government programmes and policies. Different donors seem to have different preferences for different aid modalities. Bilateral development aid, such as The Netherlands, Denmark and Ireland, report that most of their disbursements go via direct sector support; whereas banks such as the World Bank, Inter-American Development Bank, Asian Development Bank and African Development Bank mainly work through programmes.

- A precondition for aid effectiveness is that countries have clearly defined policies for water and sanitation. In this, sanitation lags behind. Twelve out of 38 reporting countries in the GLAAS survey do not have a sanitation policy covering both urban and rural areas. Many countries indicated that they have not developed nor applied criteria for the distribution of funding to unserved populations, especially with respect to sanitation.

Trend number 10

Changes in the aid landscape

The traditional aid landscape will change drastically over the next decade owing to a range of factors including new donor entrants, general development trends which eclipse the relative importance of aid, and geopolitical changes. The “classic” development aid (including to WASH), concentrates even more on the least developing countries, mainly in Africa. The agenda setting powers of traditional investors in the WASH sector (e.g. large European bilaterals and the United Nations) may lose some influence in setting the development agenda.

- The aid sector has seen a number of new entrants over the past years, which may significantly alter the aid landscape, including for WASH. Whereas international NGOs and charities have been around for a long time, and in many places NGOs represent a significant part of sector investments, the entrance of big private foundations and endowment funds may alter the landscape, not so much by the amount of funding but by their focus (e.g. on innovation, or on applying business principles to aid) and role in agenda setting. These provide more of an investment perspective, rather than classic aid. Another group of new entrants are the non-OECD countries, which have started providing aid in the form of grants, loans and technical assistance. In monetary terms their role is still very small (see trend number 7), but this may increase, particularly in resource-rich countries. Because these donors apply conditionality principles different from those applied by traditional donors, they will probably have influence in setting the development agenda. For example, they may draw more attention to the trade agenda than to aid, as well as to global public goods such as climate. This may result in basic services provision, including WASH, slowly dropping off the aid agenda.
- Private financial flows from developed to developing countries began to eclipse official development flows in the mid-1990s. Even the increase in ODA of the last decade has been outpaced by private investment, private philanthropy, and remittances. This has been accompanied by expectations that new private actors, public-private partnerships, and more unrestricted funding may spur innovation, and could be invested partly in social sectors such as water supply. However, private sector investment in water supply remains negligible, apart from the investments made by private households and individuals. Therefore, this trend is not likely to facilitate a return to the privatisation wave of the 1990s, but rather a search for a different role for the private sector in WASH.
- As important, the “aid industry” is also looking critically at itself and anticipating changes in the aid landscape. This is partially driven by the increasing questioning of aid in donor countries (see, for example, trend number 12 on Dutch development cooperation). Other donors, like the

British Department for International Development (DFID), are explicitly conducting research into the period “beyond aid”. This is likely to lead to a gradual reduction in overall aid levels or a further stabilisation of aid, but concentrated in fewer countries. Bilateral donors like the Netherlands, the United Kingdom and Sweden, have further concentrated their efforts in fewer countries. This is likely to continue, also in response to further demands for the DoL to be implemented. For countries with whom traditional ODA relations will be stopped, other partnership modalities will be sought.

3.4 Dutch development cooperation policy

Trend number 11

Dutch development cooperation policy

Future Dutch development cooperation policy broadly follows the key tenets of the 2010 report of the Scientific Council for Government Policy (Wetenschappelijke Raad voor het Regeringsbeleid)(WRR).

- The report, *Less pretention, more ambition* (WRR, 2010) is likely to have a relatively high influence on Dutch development cooperation policy. The report was generally well received by nearly all political parties. Some of its main recommendations have been implemented already. It is not likely that future governments, even if consisting of different political parties, would retract measures implemented by the current one.
- A main implication is that there will be further concentration of Dutch development cooperation in a limited number of countries. This trend started over 10 years ago, and is being implemented by other European donors. Specific criteria for concentration of efforts are currently unknown, and may slightly differ from one government to another. But, it is likely that these will include focusing on countries that are among the least developed, and where the Netherlands has a good track record of experience and expertise. In addition, special historical relations or broader foreign policy considerations may also play a role in keeping some middle income countries on the list of focus countries for Dutch cooperation.
- The overall ODA budget will be under growing pressure, both from the general public and policy makers. In fact, the current government already proposes to reduce development cooperation to 0.7% of GDP (down from 0.8%). In spite of this, it is likely that water will remain a key focus area of Dutch development cooperation and, as a result in absolute terms, the budget for water will remain stable, or only decrease slightly. In fact, for the current financial year (2011), there is a minor budget reduction within the overall “environment, water and climate” component of Dutch cooperation. Within the same component however, there is a small increase for water specifically.

The WRR report calls for a shift from a focus on basic social services provision to economic development, with particular emphasis on private sector involvement in development. The policy brief of the current government subscribes to this principle.

- However, it is uncertain whether future Dutch governments will take the same position on private sector involvement as different political parties have divergent views on this. Yet, for the next few years, it can be expected that this will be further elaborated. To date, there is much uncertainty on what this will mean for the sub-component on water (e.g. a shift from focus on WASH towards water for agriculture; for example; a focus on issues such as reuse of wastewater and MUS; or rather, a focus on encouraging the increased involvement of Dutch private sector parties in water development initiatives).
- There is a changing view on the role of NGOs. On the one hand NGOs are increasingly questioned by both the general public and policy makers, as reflected in various debates, e.g. on whether aid via NGOs might lead to fragmentation, dependency of NGOs on government subsidy, and currently, there now is discussion on the salaries received by Directors of Dutch NGOs. On the other hand, the position and work of NGOs continue to be valued in Dutch current policies, specifically, in its contribution to strengthening civil society. NGOs and government are expected to redefine the niche of NGOs in the broader field of Dutch development cooperation. One scenario is that NGOs will further shift away from providing basic services to carrying out advocacy activities, building capacity of civil society institutions and knowledge management. This is also in line with broader thinking on the role of NGOs in development⁷.
- Other channels for development cooperation will also be critically reviewed. It is expected that bilateral cooperation (via programme or sector budget support) will serve as the main modality for development funding. It is also possible that multi-lateral cooperation (including the EU) will be concentrated in a smaller number of agencies and programmes.

3.5 Information Communication Technologies (ICT)

Trend number 12 **Growing ICT disparities**

ICT disparities continue to remain between the North and large parts of the population of the South. However, most professionals in the WASH sector in the South use basic ICT services like email and mobile phones for professional communication. Effective Internet use lags behind.

- The number of Internet users worldwide doubled in the past five years and surpassed the two billion mark in 2010. The number of people having access to the Internet at home increased from 1.4 billion in 2009 to almost 1.6 billion in 2010. Developing countries accounted for 162

⁷ See, for example, SustainAbility, 2003.

million of the 226 million new Internet users in 2010, where Internet users are growing at a rapid rate. However, at the same time, 71% of the population in developed countries are online compared to 21% of the population in developing countries. While in developed countries 65% of people have access to the Internet at home, this is the case for only 13.5% of people in developing countries where Internet access in schools, at work and at public locations is critical. Fixed broadband penetration reached 8% globally by the end of 2010, but penetration levels in developing countries remained low: 4.4 subscriptions per 100 people compared to 24.6 in developed countries (ITU, 2010).

- While high-speed Internet is still out of reach for many people in low-income countries, use of mobile telephones has become commonplace, with access to mobile networks now available to over 90% of the global population. ITU's new data indicates that among the estimated 5.3 billion mobile subscriptions by the end of 2010, 3.8 billion were in the developing world. Mobile phone penetration in developing countries now stands at 68%. The trend from voice to mobile data applications is reflected in the growing number of SMS, or text messages sent, which tripled over the past three years, reaching a staggering 6.1 trillion in 2010 (ITU, 2010).
- Overall, the price of ICT services is falling, but high-speed Internet access remains prohibitively expensive, especially in low-income developing countries. In 2009, an entry-level fixed (wired) broadband connection on average cost US\$190 (on purchasing power parity – ppp) per month in developing countries, compared to only US\$28 in developed countries. While the costs for Internet access in Africa are coming down, but still are around €135 per month. Mobile cellular services are becoming more affordable, with an average monthly cost of US\$15 in developing countries compared to around US\$18 in developed countries. The relative price for ICT services (especially broadband) is highest in Africa, the region with the lowest income levels (ITU, 2010).
- The overall result is that many of the countries where we work score low on all kinds of ICT indices such as the Connectivity Scorecard, as reported in Table 11.

Table 11 **Connectivity scorecard for selected countries**

Country	Connectivity score	Country	Connectivity score
<i>Malaysia</i>	7.14	<i>Sweden</i>	7.95
<i>South Africa</i>	6.18	<i>United States of America</i>	7.77
<i>Chile</i>	6.06	<i>Norway</i>	7.74
<i>Argentina</i>	5.90	<i>Denmark</i>	7.54
<i>Russia</i>	5.82	<i>Netherlands</i>	7.52
<i>Brazil</i>	5.32	<i>Finland</i>	7.26
<i>Turkey</i>	5.09	<i>Australia</i>	7.04
<i>Mexico</i>	5.00	<i>United Kingdom</i>	7.03
<i>Columbia</i>	4.76	<i>Canada</i>	7.02
<i>Ukraine</i>	4.67	<i>Japan</i>	6.73
<i>Botswana</i>	4.30	<i>Singapore</i>	6.68

Country	Connectivity score
<i>Thailand</i>	4.11
<i>Tunisia</i>	3.87
<i>Iran</i>	3.59
<i>Vietnam</i>	3.42
<i>Sri Lanka</i>	3.18
<i>China</i>	3.14
<i>Egypt</i>	2.97
<i>The Philippines</i>	2.92
<i>Indonesia</i>	2.13
<i>India</i>	1.82
<i>Kenya</i>	1.80
<i>Nigeria</i>	1.78
<i>Bangladesh</i>	1.69
<i>Pakistan</i>	1.53

Country	Connectivity score
<i>Ireland</i>	6.37
<i>Korea</i>	6.33
<i>Hong Kong</i>	6.10
<i>Belgium</i>	6.08
<i>New Zealand</i>	6.07
<i>Germany</i>	5.77
<i>France</i>	5.65
<i>Czech Republic</i>	5.03
<i>Spain</i>	4.79
<i>Portugal</i>	4.45
<i>Italy</i>	4.35
<i>Hungary</i>	4.31
<i>Poland</i>	4.06
<i>Greece</i>	3.44

Source: Connectivity Scorecard, 2010.

- ICT disparities also affect the work of WASH professionals in the South. Based on experience of IRC staff, while most WASH professionals at national and district level with whom we work (even in countries with the lowest connectivity levels, such as Zimbabwe, Uganda, Ghana and Mozambique) generally have access to email and mobile phones for professional purposes, low Internet connectivity pose great challenges to developmental initiatives. For example, internet use for dedicated information searches, uploading and downloading documents, the use of intranet, etc. continue to lag behind, because of the costs and instability of the Internet in some developing countries. In 2010 WaterAid started installing VSAT (Very small aperture terminal) satellite communication systems in 10 African countries to improve poor internet connections in the region (WaterAid, 2010).

Trend number 13

New tools and social media

With growing access to advanced ICT tools, initiatives to apply these communication technologies to improve WASH services delivery (water point mapping, reporting on service delivery, online project monitoring etc.) are growing exponentially. These ICT initiatives are fundable as stand-alone projects. Sector organisations expand their traditional ICT tools to new social media.

- Over the past few years a number of new mapping tools have become available for monitoring water and sanitation projects, including the ones mentioned below. It is likely that these and other initiatives will draw attention of funders and users, as they have high potential to contribute to improved service delivery, for example, by allowing reporting on break-downs, better monitoring of performance of services provided, and in taking corrective actions. The most well-known examples include:
 - *Water Point Mapper* (<http://www.irc.nl/url/38316>): a free tool developed by WaterAid, producing maps showing the status of water supply services at (sub)-district level in Sub-Saharan Africa. It has been designed for use by local governments in situations where there is no Internet connectivity.
 - *h2.0 Monitoring Service to Inform and Empower Initiative* (<http://www.irc.nl/url/38317>): this service, run by a consortium consisting of Google.org, UN-HABITAT, GIZ, University of Twente and WaterAid is testing innovations in water and sanitation services monitoring, with special attention to providing public access to visual information through Google Earth.
 - *FLOW, Field Level Operations Watch* (<http://www.irc.nl/url/38318>): launched by Water for People, FLOW uses Android mobile phone technology and Google Earth software. It provides anyone on the Internet access to data about water points or sanitation systems.
- Apart from these water point mapping tools, other ICT tools are being applied in WASH, such as wiki sites like Akvopedia (2011) and the World Bank Wikipedia Project (World Bank, 2011). Other initiatives include online funding market places for small-scale WASH projects on the Akvo website (2011) and Peer Water Exchange (2011). Mobile technology is being used to provide information on water availability to consumers in the Nextdrop project (Nextdrop, 2011) and for water quality monitoring in South Africa in the Aquatest project (Bristol University, 2011).
- It is expected that social media and other ICT applications will be further developed and promoted to improve service delivery, e.g. for reporting service interruptions, providing feedback to operators, and social auditing. Whereas these hold huge potential to improve service delivery, they need to be linked to broader improvements in governance. That is why scepticism remains on the potential impact of ICT applications to address WASH problems. Research in ICT4D shows that *“technology — no matter how well designed — is only a magnifier of human intent and capacity [and] not a substitute”*, according to Kentaro Toyama, a researcher at the School of Information at the University of California. *“Charging in head first with technology to repair human problems simply doesn’t work”*, according to Toyama. Translating this to the WASH sector, this implies that the introduction of new ICT tools to improve monitoring etc. without improved governance and local capacity development will not be sustainable (WASH Technology news, 2010). To be sure, there are many examples of ICT projects that have failed, also in the WASH sector. Therefore, affordable and available technology, such as mobile phones, have the ability to empower users to take initiative and demand increased access to information. In addition, they create the capacity for cloud computing.

- Finally, ICT can have an impact on the public relations and knowledge sharing activities of sector organisations. Many organisations (with the exception of a few academic institutions) have now included social media like Facebook, Twitter and YouTube as an official communication and dissemination channel (see Table 12).

Table 12 Sector and development agencies and their use of social media

Organisation	Facebook	Twitter	YouTube	Linkedin	Flickr	Other
<i>AfDB</i>	X	X	-	X	-	-
<i>Akvo</i>	X	X	X	-	X	Bliptv (WaterCube) Blog
<i>AsDB</i>	X	X	X	X	-	Scribd Blogs
<i>Charity water</i>	X	X	X	X	-	Blogs
<i>Cranfield Univ</i>	-	-	-	-	-	-
<i>DFID</i>	X	X	X	X	X	Blogs
<i>DGIS</i>	X	-	-	-	-	-
<i>FAN</i>	X	X	X	-	X	-
<i>Gates</i>	X	X	x	X	X	-
<i>GWP</i>	X	X	X	X	X	Slideshare
<i>IADB</i>	X	X	X	X	-	-
<i>IRC</i>	X (trial)	X (via Source)	-	X	-	Bliptv Blogs (Wordpress)
<i>ODI</i>	X	X	X	X	-	iTunes
<i>Plan Int</i>	X	X	X	X	X	-
<i>RWSN</i>	-	-	-	-	-	-
<i>SANDEC</i>	-	-	-	-	-	-
<i>SIWI</i>	X	X	X	X	-	
<i>SWA</i>	-	-	-	-	-	-
<i>UN-HABITAT</i>	X	X	X	X	-	-
<i>UN-Water</i>	X	X	-	-	-	-
<i>UNEP</i>	X	X	X	X	-	-
<i>UNESCO</i>	X	X	X	X	-	-
<i>UNESCO-IHE</i>	X	X	X	X	-	-
<i>UNICEF HQ + some countries</i>	X	X	X	X	X	Scribd MySpace
<i>Water for People</i>	X	X	X	X	-	Blogs
<i>WaterAid UK</i>	X	X	X	X	X	Blogs
<i>WEDC</i>	-	-	-	-	-	-
<i>WHO</i>	X	X	X	X	-	-

Organisation	Facebook	Twitter	YouTube	Linkedin	Flickr	Other
WIN	-	-	-	-	-	-
World Bank	X	X	X	X	X	Wikipedia Blogs
WWD 2011	X	X	-	-	X	-
WSP	-	-	X	-	-	-
WSSCC	X	-	X	-	-	-
WWC	Inactive	-	-	-	-	-

Source: Own elaboration (2011).

Trend number 14

Products and services available digitally

All new WASH information products and services are now available digitally, and are expected to be made available free of costs. Hard-copy information will increasingly only become available against payment (printing-on-demand).

- Over the past years most major new sector documents have been made available digitally, free of charge. A big exception remains in academic journals, most of which, including in the WASH sector, still require a fee even for online viewing. Mainly academic books continue to be only available as hard copies or paid-for downloads.
- Still the demand for certain paper-based products like text books, training manuals, booklets and promotional materials will remain. Printing on demand seems a trend in addressing this gap.

3.6 WASH content, issues and approaches

Trend number 15

Focus on sanitation

It is increasingly being recognised that sanitation remains the big gap in achieving the WASH MDGs. In response, various organisations have decided to (nearly) exclusively focus their efforts and resources on sanitation as a new niche area.

- Over the past few years various initiatives have drawn widespread attention within the WASH sector to the sanitation gap (see trend number 5), particularly the International Year of Sanitation, and regional follow-up conferences such as LatinoSan, AfricaSan and SACOSAN

(South Asia Conference on Sanitation). Also, better disaggregated statistical information, as reflected in the JMP, for example, have highlighted this gap. There now is better awareness of the overall sanitation challenges and their regional specificities (e.g. the complexities of urban sanitation, the need to address wastewater management in Latin America, CLTS in South Asia, access to basic sanitation in Africa, etc.).

- To some extent this is being reflected in government and donor commitments to WASH. For example, the Etheke Declaration sets targets for spending on sanitation for African governments (AfricaSan, 2008). Amongst others, it establishes specific public sector budget allocations for sanitation, with the aim of spending 0.5% of GDP on sanitation.
- Irrespective of the extent to which governments and donors will live up to these challenges, it is likely that there will be an increased demand for new approaches, methodologies, concepts, ideas and knowledge on sanitation service delivery for different contexts (urban, rural, Africa, Asia, Latin America), as current approaches seemingly struggle to provide services.
- A number of high level players have decided already to focus (nearly) exclusively on sanitation and hygiene, as their new niche, including the Water Supply and Sanitation Collaborative Council and UNICEF. It is likely that with the demand for sanitation-specific knowledge, this will grow into a more specific niche market into which other WASH organisations may also move.

Trend number 16

Sustainability of rural supply

In water supply, the main backlog in access remains in rural areas. But as that backlog gets addressed, the backlog in maintenance for sustainability of rural water supply services becomes an even greater sector issue. It becomes increasingly clear that the main service delivery model of community management is not enough, and that a broader shift to service delivery approaches is needed.

- As shown in trend number 5, the world is on track for reaching the MDG target for water supply (WHO/UNICEF, 2010). Although extension of services to people in urban areas is barely managing to keep pace with population growth, the big challenge remains in rural areas, where most people without access live, and where challenges for ongoing service delivery are highest. Particularly the challenge of lack of sustainability of services has become apparent in recent years. The Rural Water Supply Network (RWSN, 2009) indicates an average rate of 36% non-functionality for hand pumps in sub-Saharan Africa (see Figure 12).

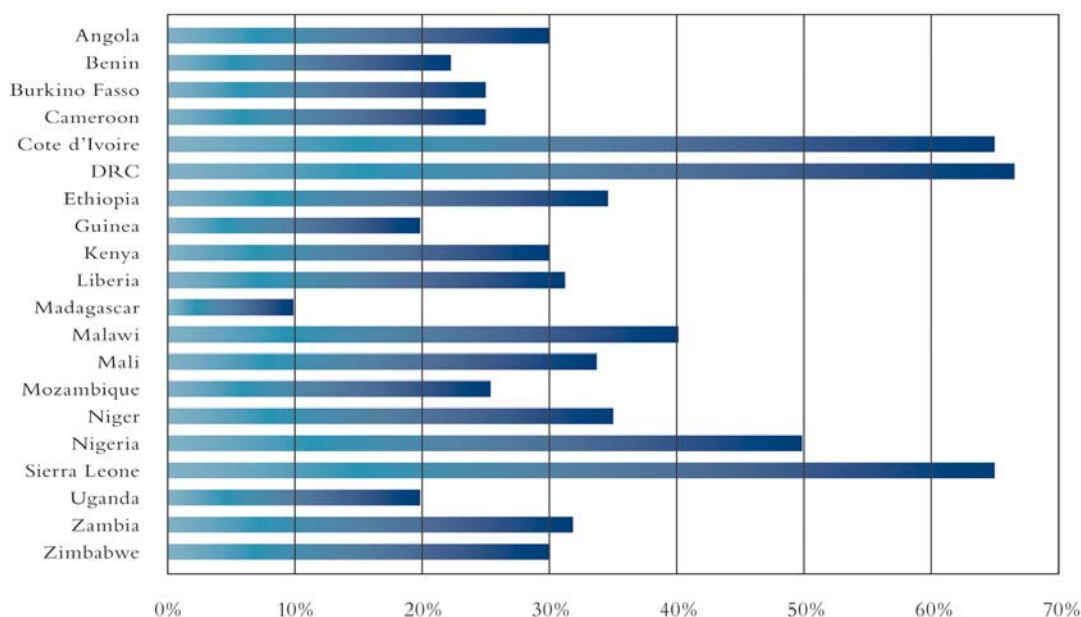


Figure 12 Estimated % of broken down handpumps in Africa

Source: RWSN, 2009.

Table 13 reflects similar figures on the poor levels of sustainability found in some of the countries where we concentrate our efforts.

Table 13 Indicators of sustainability of rural water supply in selected countries where IRC concentrates its efforts

Country	Proxy formal indicator for sustainability of rural water supply	Value
<i>Honduras</i>	Composite indicator classifying performance of service into four levels	22% classified as requiring major intervention
<i>Burkina Faso</i>	Functionality of water facilities	82% (handpumps) 66% (small piped systems)
<i>Ethiopia</i>	Functionality of water facilities	67%
<i>Uganda</i>	Functionality of water facilities	81%
<i>Mozambique</i>	Functionality – for handpumps only	85%
<i>India</i>	Extent of slippage	30%

Source: Lockwood and Smits, 2011.

- The importance of sustainability is likely to increase as coverage figures go up and stocks of assets rise. A new balance will have to be found between investing in new infrastructure and ensuring sustainability of existing assets. Recent studies and events organised by IRC and others have captured trends in addressing the sustainability of rural water supply (Lockwood and Smits,

2011; Moriarty and Verdemato, 2010; Rural Water Supply Network, 2009). These show a realisation that community-based management, as the primary management model in rural areas, has limitations. In addition, these show various efforts to move towards a more service-oriented approach in rural water supply, through approaches such as post-construction support, regulation of rural operators, introducing performance and sustainability indicators, asset management, etc. – and that these can have a positive impact on sustainability and service delivery. It is probably not surprising that most of these innovative practices to address sustainability are largely limited to (lower) middle income countries such as Honduras, Colombia, South Africa, India and Thailand where a certain level of coverage had already been achieved. Over the next few years there will be an increased demand for experiences, knowledge, concepts and methods to increase sustainability of supply. A particular gap remains in how these concepts can be applied for water source points in rural Africa – where so far, few of these concepts have been taken to scale.

Trend number 17

Decentralisation capacity gap

In terms of governance, the trend to decentralising the responsibility for WASH service delivery to local governments continues. There is still a capacity gap within many local authorities that will require many years to address.

- The study by Lockwood and Smits (2011), with one or two exceptions, confirms that decentralisation of responsibility for WASH services delivery is the norm in most countries. However, the degree and extent of decentralisation differs across countries particularly as far as fiscal decentralisation is concerned, as also echoed by WaterAid (2008).
- Yet, the effects of decentralisation on service delivery are, at best, mixed. The main argument behind decentralisation processes is that shifting decision making and finances from central to local government leads to better delivery of services assessed in terms of their fit with local needs, quality and unit costs (Helmsing, 2002). However, there is little consensus in the literature on whether decentralisation has actually been effective. A positive case is presented by Faguet (2003) who argues that in Bolivia decentralisation has effectively put money in the hands of poor municipalities that have been able to better meet the needs of their constituency than the central state. Opponents of decentralisation argue that local governments are susceptible to capture by elites, and lack in capacity and resources to provide efficient and effective services (Faguet, 2003). To illustrate, a study in India linked decentralisation to higher levels of corruption in the sector (Davis, 2004). In some places, decentralisation has created more dependency than self reliance, and paradoxically, may have suppressed civil society initiatives (Helmsing, 2002). In societies with traditional community level institutions, the empowerment of local government may also represent centralisation from the point of view of citizens (Toulmin and Guèye, 2003).

- As well as strengthening local governments, decentralisation also often involves transfers to markets and communities (Helmsing, 2002). In the water sector, for example, private sector service delivery or outsourcing of aspects of water and sanitation services is widespread, and community water management where users play the main role in operation and management of systems is still the dominant paradigm in the provision of rural water supply.
- In spite of the steady progress in decentralisation, gaps in capacity of local governments remain huge. Few estimates exist on the quantitative gap in human resources needs, and where they do exist, they are fraught with methodological question marks. A recent attempt to estimate the quantitative gap in five countries yielded some insights (DFID-IWA, 2011), as depicted in Table 14. In addition, there are many gaps in the quality of personnel in the sector.

Table 14 Capacity gaps in the water sector in selected countries

Country	Population (million) <small>Source: WHO/UNICEF, 2010.</small>	Current workers	Gap of WASH sector workers	Implied required ratio of population/ worker	Observations
<i>Timor Leste</i>	1.1	459	350-752	1.294-880	Most demand for technicians and skilled workers
<i>Zambia</i>	12.6	> 6.000	606	1.907	Social scientists skills not used in the sector
<i>South Africa⁸</i>	49.7		40.000 – 278.000*	1.225-176	Main gap at middle technician and managerial level
<i>Bangladesh</i>	160.0	40.000	40.000	2.000	Mainly a gap in the public sector
<i>Mali</i>	12.7	2.600	1.446	3.139	Lack of skills both in sanitation and hygiene and managerial areas

Source: Own elaboration(2011), based on DFID-IWA, 2011.

- Causes for the capacity gap are manifold and include inappropriate training and ill-equipped training institutions, staff recruitment and retention, particularly in the public sector, generally weak institutions, and gender inequalities (DFID-IWA, 2011). The gap tends to be highest at local government level and in rural areas, which are often unattractive places to go for employment. Besides, in these areas, there is often little funding for capacity development, as seen under the financing trends.
- Lockwood and Smits (2011) provide an overview of ways to address part of the capacity gap through, for example, tiered systems of capacity support from provincial or national level, sharing resources between local authorities, etc., as found in 13 different countries. However, they observe that the more structured and innovative modalities are mainly found in middle

⁸ The figures for South Africa, while not reflecting a gap, reveal the predicted and needed workforce under different economic growth scenarios.

income countries such as Honduras, Colombia, South Africa, but also Uganda. And even there, many capacity gaps remain.

Trend number 18

Accountability and impact assessment

There is a strong push to show the evidence for the impact of investments made in WASH services, giving rise to a demand for new sets of performance indicators, accountability mechanisms, assessment methods and instruments.

- Though not quantifiable, there seems to be an increase in demand for accountability over investments in WASH services and their impact. This is on the one hand related to a more critical attitude amongst tax payers in the North over the use of ODA. This results in a demand for donors to measure the impact of their contributions, and provide evidence of value-for-money investments in WASH. Besides, they are wanting clear monitoring and transparency of funds. But, it is also advocated for by users who seek to hold authorities and service providers to account, as well as by authorities who seek to put accountability measures in place to reduce corruption. The Government of India has, for example, included social auditing in national rural drinking water programme guidelines. Similar arrangements exist for community-managed rural water and sanitation programmes in various Latin American countries. The demand for accountability may go as far as the need to show evidence for the return on investments in WASH in comparison to other sectors. Ministers of Finance or donor agencies may request such evidence to define investment priorities, although this seems at odds with the right to water and sanitation (see trend number 21), which assumes that investments in access to water and sanitation are required as a human right, not merely because of the potential return on investment.
- Related to the previous bullet, as well as to the trend towards improved aid effectiveness, is the development of sector accountability. Whereas in the past many projects and programmes had employed their own reporting and accountability mechanisms, now such reporting and accountability takes place more often at sector level, through instruments like a sector performance report and joint sector reviews. In these, annual progress and performance of the sector as a whole are reported upon. Curiously, such sector accountability has mainly started in the more aid dependent countries, including Uganda and Mozambique. In middle income countries this is less the case.
- Whether sector level accountability also translates into, for example, greater transparency and accountability by governments and service providers to users is uncertain. The establishment of the Water Integrity Network (WIN) in 2006 has contributed to issues of transparency, corruption and integrity being addressed and applied in the WASH sector. For example, local chapters of Transparency International, WASH sector organisations, governments and others have started working on aspects such as specific anti-corruption legislation for the WASH sector. Examples of efforts of improving accountability abound (e.g. citizen score cards have been promoted in parts

of East Africa and South Africa), but whether these are structural trends or merely interesting activities that do not reach scale cannot be asserted. A possible trend might be that regulation will be developed and applied for rural areas. Various countries (Mozambique, Zambia, and some Latin American countries) have developed regulatory frameworks for urban providers, and seek to extend these to small town areas and rural providers. This can be a way to both hold rural providers to account and also improve performance in service provision. Although the result of these trends remains uncertain, it is to be expected that there will be further demand for approaches and tools for improving accountability and transparency in water and sanitation services delivery.

- Commonly used statistics (such as coverage figures) and methods (impact assessment studies) are inadequate and insufficient to assess the results and impacts of the investments made. As a result, over the past years a number of countries have developed more complete sets of indicators (e.g. Uganda's golden WASH sector indicators) and new types of indicators (e.g. Honduras' indicators to assess service performance in rural water supply). Many countries also have set their own targets, some of which go beyond the ambition of the MDGs. Also, a debate has started on what kind of impact assessment methods and approaches are actually most relevant for the WASH sector (Garandeau, Casella and Bostoen, 2009). In spite of progress, this is an area in which more work is needed, and it can be expected that there will be further demand for new tools, methods, indicators, etc. to assess the performance and impact of WASH services.

Trend number 19

Climate change

As climate change has risen on the political agenda, the WASH sector embraces the issue in an opportunistic way. It is not certain how or whether climate change adaptation funds will build on sector efforts to improve WASH services.

- The United Nations Framework Convention on Climate Change environmental treaty, the Copenhagen Summit in 2009 and the Cancun Summit in 2010 on climate change have brought climate change onto the political agenda as well as into the public debate. This has also been reflected in the water sector, with dedicated sessions at major international water conferences such as the World Water Forum in Istanbul in 2011 and the Annual Stockholm World Water Week.
- Climate change has the potential to impact on both the supply and demand sides of WASH delivery systems. Some potential impacts are likely to be direct and very obvious (e.g. increased incidence of extreme floods that damage WASH infrastructure), whereas others are likely to be indirect, insidious and more uncertain in nature and severity (e.g. sea levels rise, leading to migration away from coastal areas, and resultant changes in demand for WASH infrastructure) (Batchelor, et al., 2009). The WASH sector has seen a range of responses to this, ranging from alarmist (often for advocacy purposes), opportunistic (using climate change as a way of

accessing different types of funds), a convenient scapegoat (cases have been reported where poor service delivery was conveniently blamed on climate change) or deferential (“*we know climate change is a real threat, but there are so many other problems we struggle with in WASH services delivery that we cannot handle this as well*”) (Batchelor, Smits and James, in press). The lack of a concerted reaction reflects itself in the fact that few WASH sector organisations have developed comprehensive approaches and guides on how to deal practically with adaptation. It is probable that, for the WASH sector, adaptation to climate change will require us to keep doing what we already do i.e. improving governance and management. Climate change is an important driver, but generally not the most important one.

- There is a possibility that future developments related to climate change adaptation funds will also affect funding for WASH. If global agreement is reached on adaptation funds, there is a possibility that these will be spent through existing sector channels, and could build on sector investments. In that case, there could be increased funding for WASH. Or, adaptation funds could be paid out of existing ODA budgets, which might mean that WASH funds are used for broader climate change adaptation. Finally, there is a chance that climate adaptation funds will be spent on water through other channels, repeating mistakes made in the past in WASH, e.g. focusing on infrastructure.

Trend number 20

Technology development

Water and sanitation technology development is driven by the needs of the growing middle classes, as well as the search for reducing the costs of known technologies. These may hold potential for the poorest parts of the population, though are not likely to represent a breakthrough for addressing the gaps in access.

- Processes like urbanisation, population growth and economic development will have an important influence on water and sanitation technologies, particularly on the demand for piped water supply. Villages that grow into towns will shift, for example, from point sources to piped water supply and from pit latrines to septic tanks or even sewerage systems. Likewise, economic growth will result in demand for higher levels of services, such as a demand for improved water quality. Household water treatment is an example of such cases. There is a growing consensus that it represents a technology with high potential, but only when people already have some level of access to water (Clasen, 2010), thereby implying it may be more suitable for households that are moving up the water service ladder. As a result, WHO/UNICEF (2010) reports that the rate of increase in the use of piped water on premises has been faster than the rate of progress in the use of other improved drinking water sources, in all regions except for Sub-Saharan Africa, South Asia and the Commonwealth of Independent States. Likewise, some recent research grants are going into second generation issues, such as wastewater treatment and reuse.
- Having said that, there is still an enormous scope for improving technologies that are currently used widely in the poorest countries and in rural areas, and particularly in reducing costs of, for

example, well-drilling and handpumps (Carter and Byers, 2006). Also, technologies typically used under self-supply conditions, such as family wells or rope pumps, have received a lot of attention in the effort to reduce technology costs.

- The combined result of the drive for technologies that allows for higher levels of service, and the search for reducing costs of known technologies, is uncertain. Most likely it will result in very gradual reductions in costs of making technologies available to the poorer parts of the population. But we should not exclude that there may be important breakthroughs in this, for example, nano-technology research that represent a step-wise change in affordability or feasibility of certain technology options.

Trend number 21

Right to water and sanitation

Even though the right to water and sanitation is increasingly being recognised internationally and taken as guiding principle for WASH at country levels, the practical implications remain limited.

- The right to water and sanitation has been officially recognised by the United Nations, both by its General Assembly in July 2010 and by its Human Rights Council in September 2010, making it legally binding in international law. Table 15 lists the countries which have enshrined the right to water in their national constitutions, or have framed the right explicitly or implicitly within national legislation.

Table 15 Countries recognising the right to water and sanitation

Africa	Algeria, Angola, Democratic Republic of the Congo, Eritrea, Ethiopia, Gambia, Kenya, Madagascar, Mauritania, Morocco, Mozambique, South Africa, Tanzania, Uganda, Zambia,
Asia	Bangladesh, India, Indonesia, Philippines, Sri Lanka,
Middle East	Iran, Kazakhstan
Latin America	Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Guatemala, Honduras, Nicaragua, Panama, Paraguay, Peru, Uruguay, Venezuela
Europe	Belgium, France, Netherlands, United Kingdom

Source: *The Right to Water and Sanitation* (2011).

- In practical terms this means that governments have committed themselves to universal access to water and sanitation. The United Nations resolutions however do not stipulate when states have to achieve universal access, nevertheless they ensure that water and sanitation remain on both the international and national agendas. This also implies that more human rights groups will take up water and sanitation as an issue⁹.

⁹ For an example of what this may entail, see Amnesty International (2010).

4. Scenario building

This section presents a range of possible future scenarios for the WASH sector in which IRC will operate. We started by first looking back at the scenarios that were identified in 2006, and by drawing lessons. What were we right about? What were we wrong about? Scenario planning is, after all, about useful predictions in order to best respond to the unknown, and to impact positively as the future unfolds. We continued by defining our vision for the sector, and IRC's roles within that. The trends identified in section 3 were then grouped according to their perceived importance and certainty¹⁰. Based on our assessment of these trends, narrative (possible) scenarios for the future of WASH until 2020 are presented in this section.

4.1 Looking back at past scenarios

Before building new scenarios, based upon the observed trends that we identified, we looked back at the scenarios identified by Fonseca and Moriarty (2006), and examined how these compare with actual experiences over the past five years. The objective of this review was to see whether we missed out on certain major trends, or overstated others. It was not to identify which scenario was right, but whether the set of trends contained the range of developments in the WASH sector.

The original scenarios, for which the time line was 2015, were:

- **Scenario 1: Business as usual – many gain, many left behind.** Under this scenario the WASH sector would be dominated by bilateral aid with a strong construction emphasis within the sector. Although this brings new WASH systems to many, pockets where aid does not reach remain behind, and is often off-set by poor sustainability. Dutch support to the WASH sector would remain strong, putting IRC in a good position to provide support.
- **Scenario 2: WASH dream – but beware of the “capacity cowboys”.** Under this scenario there would be a predominance of bilaterally coordinated aid and a strong emphasis on capacity building by local actors, and building knowledge within the sector; i.e. looking beyond construction targets only. Dutch support to the WASH sector would remain strong, putting IRC in a good position to provide support.
- **Scenario 3: SWAps succeed – but instability and emergencies soak up aid.** Under this scenario there would be a marked increase in multilateral aid, via SWAps, but also lots of focus on hardware provision. At the same time, there would be more political instability which would soak up funds for WASH in emergencies.
- **Scenario 4: WASH nightmare – Dutch disengage, MDGs left in the dust.** Under this scenario levels of political instability, both in the North and in the South, would result in defeatism, with many donors, including the Dutch, reducing aid and pulling out from the global WASH sector. Least developed countries in Africa would be left to find their own way.

¹⁰ In our exercise we focused very much on the perceived impacts on our organisation, the IRC. Other organisations could use the same methodology to look at the issues from their perspectives.

Elements of the base scenario in each of these different scenarios included the differential pace of development between regions, with Asia steaming ahead and Africa struggling behind, growing ICT disparities, and the sanitation and hygiene sectors remaining poorly addressed.

Looking at trends over the last five years, it is clear that the operating environment that evolved is most clearly captured in scenarios 1 and 3. Hardly any of the defining characteristics of scenarios 2 or 4 are close to what has actually happened. Although there is increased questioning of aid, so far, aid levels have not fallen, but have actually increased slightly in absolute terms for the WASH sector. Fortunately, neither has political instability in the scale described in scenario 4 happened. On the other hand, the positive predictions of scenario 2 seem to not have played out either. The sector remains focused on mainly construction and not on capacity development or sustainability of access to WASH services. Neither have ODA budgets for WASH doubled. The only element of scenario 2 which has remained true is the strong support of the Dutch government to the WASH sector, though that was also captured under scenario 1. Most of the elements of what we now see in 2011 were captured in scenario 1: business as usual. One important element of scenario 3 must be added, which is that bilateral aid is not solely seen as the main aid channel. SWAps continue to be promoted (as predicted under scenario 3), and in most places a myriad of funding channels are found alongside each other.

The fact that the “business as usual” scenario plays out is not all that surprising; few development sectors change significantly within five years. Perhaps only the ICT and finance sectors have undergone profound changes in this time period. As mentioned in the introduction, changes in the main paradigms in the water and sanitation sector often occur rather over time periods of one or two decades – as was for example the case with the promotion and subsequent decline of large-scale privatisation of urban utilities. In rural water supply the main approaches have evolved even more gradually; one can distinguish periods of approximately ten years with different approaches being predominant: Village Level Operation and Maintenance in the 1980s, community-based management in the 1990s, and a growing emphasis on support to community-based management in the 2000s¹¹. One reason why changes occur relatively slowly lies in the fact that WASH is a complex sector with a high number of organisations involved, at all levels, from international donors to national governments and NGOs, to local governments, service providers and users themselves. Even if one organisation makes a radical change, the effects on the sector as a whole can be small. If a country adopts a very different approach in policy, it takes many years before local governments and service providers are able to implement the change. Or, progress in one country may be off-set by a set-back in another. For these reasons, it is not surprising that histories of changes in the WASH sector often identify changes per decade, especially at the more global level.

When examining a single country (as opposed to the WASH sector as a whole), the picture might look more dynamic, where changes in the direction of one organisation might have more effect; and in spite of lags, changes in, for example, policy or institutional reforms are felt most closely. For example, the withdrawal of USAID from the WASH sector in Honduras has left a big gap both in terms of financing and technical assistance. The adoption of SWAp’s in South Africa and Uganda have made the WASH sectors in both countries in 2010 very different from what they were in 2000, but not to the point that they are unrecognisable to sector professionals globally.

¹¹ See Lockwood and Smits (2011) for a short history of trends in rural water supply.

While developments in the WASH sector are fairly gradual, they generally take place in a highly dynamic environment that is typical of many developing countries. Rapidly changing levels of economic growth, political instability, and a dependency on the broader aid sector, all influence the direction in which WASH services development is moving. But again, the impact of these changes is often indirect and with a lag, tempering the scale of the economic and political peaks and lows. As shown in the trends analysis, the impact of the economic crisis on the WASH sector is likely to be felt only in a few years from now, and probably by then it will have subsided somewhat. But while the sector as a whole can relatively easily absorb and convert these shocks and changes, they can have a more profound impact on a single organisation. Changes in the Dutch policy for funding NGOs will not be felt as more than a ripple in the WASH sector, but will have an important impact on the budgets and strategies for Dutch NGOs such as IRC.

In conclusion, a review of the trends of the past five years shows that changes in overall concepts and policies in the WASH sector take place in a very gradual manner, and only incrementally build upon the way things were done in the past. Where new ideas are introduced, such as MUS, they have taken at least five to ten years to be applied at some scale. It also shows that these kinds of trends' analyses for an organisation as a whole need to be repeated or complemented by analyses at country and regional level, as that is the level where more specific trends can be identified, both within and outside the sector. The review indicates that alarms about the impact of developments outside the sector on WASH services (HIV/AIDS in the 1990s and early 2000s, climate change, the economic crisis) are often exaggerated. Not that those trends are unimportant, but their impact is indirect and with a lag, and hence the sector has time to adjust. The future may not necessarily be the same though and there are risks in relying on merely extrapolated trends. Particularly "black swan" events, like a breakthrough in technology, may mean a step-wise change. But even then it will take at least five years or so before such technologies could be scaled up.

4.2 Defining a vision for the WASH sector

The next step was the definition of a vision for the WASH sector. It is against this vision that we assessed trends and, ultimately, scenarios. In this, we distinguish between our vision for the WASH sector, and one for our organisation.

Our vision for the WASH sector is one of a *world in which all people are able to enjoy their fundamental human right of access to appropriate and sustainable water and sanitation services that they use and can afford; and where these services are in turn based on the sustainable use of water and environmental resources.*

Our vision for IRC is to be a leading international NGO, with a global outreach, that leads, catalyses and supports pro-poor change in the delivery of WASH services; thus contributing to a better performing sector that:

- Learns better,
- Coordinates and aligns the efforts of its stakeholders in a more coherent way,
- Takes informed (evidence-based) decisions,

- Operates in a transparent way and is accountable to all its stakeholders and, ultimately,
- Provides sustainable and affordable WASH services to all.

4.3 Grouping trends in terms of importance and uncertainty

Based on our observations and opinions we classified the trends presented in section 3 according to their perceived degree of importance and level of uncertainty, as demonstrated in Figure 1. The results are presented in Figure 13 (see page 57). The trends have been abbreviated to key words, and are numbered as they are in section 3 for ease of reference.

We decided to focus on the importance and uncertainty of these trends to IRC as an organisation, as well as its contribution to the vision for the WASH sector outlined above. The two are obviously interlinked. That may explain why some of the classifications may seem counter-intuitive or contrary to what was described in the previous section.

What follows is an explanation of how some of the trends were classified:

- We combined the trends of economic growth and human development (trend number 1) and political stability (trend number 4) for the purpose of this exercise. The differential development of countries and regions is a very important factor, as countries in different development stages have different needs, and offer a different type of market for IRC. The poorest countries with low coverage rates might have demands for approaches to rapidly increase access to services, whereas countries that have reached a certain level of coverage might become more interested in approaches for improving service delivery. Also, the donor landscape differs drastically between such types of countries. Although the broad development trends across regions are quite certain, it is the specific development within countries which are more uncertain. This not only depends on changes in economic growth, but also on political stability, and changes in governance regimes, and is subject to “black swan” events. As IRC has adopted a focus country approach, working in a limited number of countries, changes in economic development or political regime (either positive or negative) in one or more countries could have a profound impact on our operations. As these cannot be predicted we considered trend number 4 as uncertain and important for IRC¹².
- Finance trends (trend numbers 6-10) are very important for the WASH sector as these greatly influence the extent to which WASH targets can be met and the vision achieved. Changes in financing WASH are gradual because of the large number of funders involved, and the usual long-term commitments in the case of donor funds. Also, policies (for example, with regards to targeting investments) often take one or more years to develop, and even longer to implement. So, overall changes in financing will only play out in the medium term. Yet we have also seen the uncertainties in this, particularly related to the existing funding streams and how these can be filled (trend number 6) and the changes in the aid landscape (trend number 10). Therefore these

¹² To capture the more detailed uncertainties associated with individual countries, there is a need to undertake regional and country specific scenario analyses.

are classified as uncertain and important trends. Remaining trends clustered around financing are all more certain.

- However, IRC itself is not influenced by overall financing trends, but rather by specific changes in our own aid landscape that will affect both the organisation and the environment in which we work. Again, there might be unforeseeable and unpredictable events in this landscape, if, for example, one of our traditional donors changes its focus; or when a major new funder becomes interested in the services provided by IRC. Hence, changes in the aid landscape (trend number 10) have been placed under the uncertain category.
- ICT trends (trend numbers 12-14) could perhaps be considered less important to the WASH sector as a whole, compared to many other trends. However, they are very important to us in IRC since information and knowledge management are our core activities. Overall, ICT development is uncertain in the sense that they are likely to be breakthroughs in technology development that cannot be predicted very far ahead, but which may have a profound influence on our operations. However, the impact of such breakthroughs on the WASH sector is likely to be more gradual, as there will generally be a lag between technology breakthroughs, their adaptation to the WASH sector, and then finally their effective use to improve WASH services. Hence, ICT trends (trend numbers 12-14) have been placed under the less uncertain but important category.
- Trends in content, issues and approaches, as in 2006, have nearly all been classified as less uncertain. The introduction shows that the key issues and approaches do not change radically over the medium term, and hence we consider them quite certain. The same applies to sector reforms, such as decentralisation (trend number 17) or other governance improvements. These take a long time to put in place and are not easily reversed. So, the current trends are very likely to continue for a longer period. The only exception are the trends related to climate change and technology (trend numbers 19 and 20), which are uncertain, but less important.
- As explained above, water scarcity (trend number 3) is likely to increase; we just do not know the rate at which this will happen.

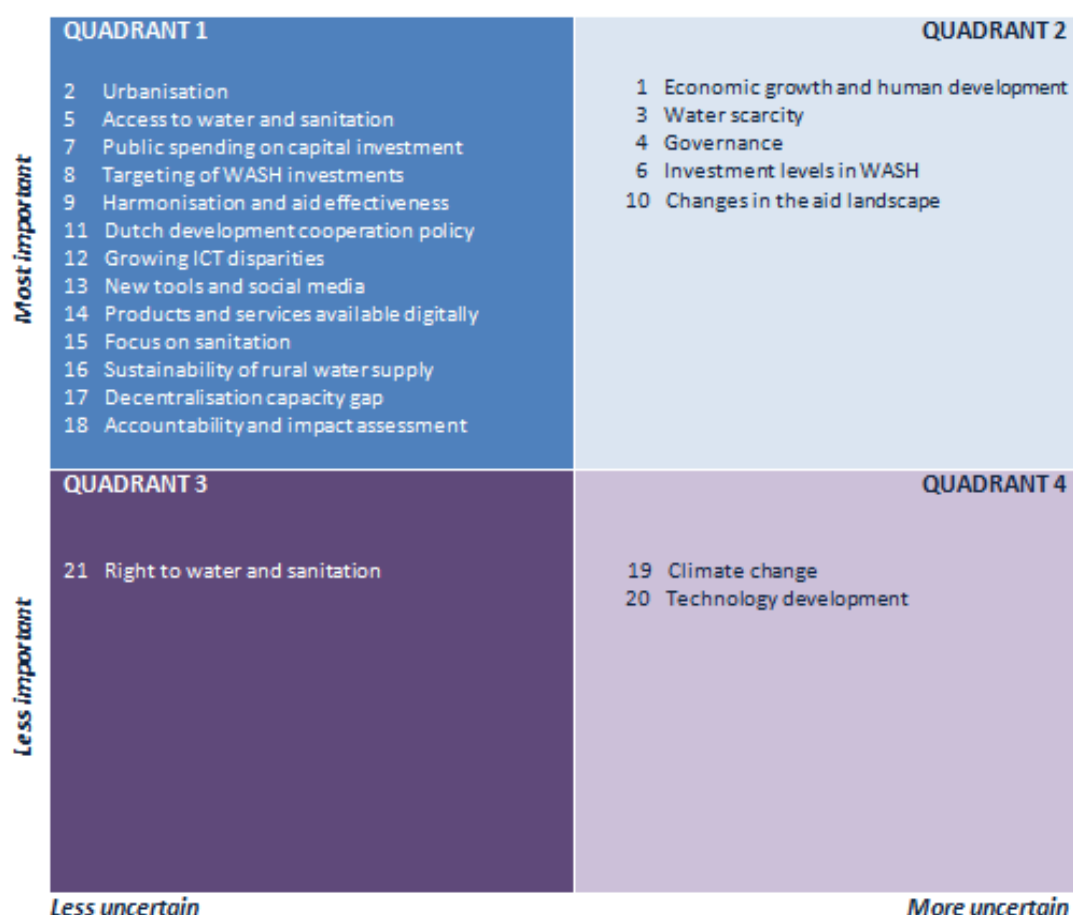


Figure 13 Grouping of trends according to their degree of importance and level of uncertainty

Source: Own elaboration (2011), based on Schwartz, 1991.

4.4 Scenarios for 2020

Using the trends grouped above we identified new possible future scenarios. In order to do this, we considered the trends grouped in quadrant 1 (and to a lesser extent quadrant 3) as the elements of our **base scenario**. We consider these as elements that will certainly affect WASH developments in the coming years. For each of the trends in quadrant 2 (Trends 1, 3, 4, 6 and 10), we identified two possible extreme states, as we are not certain about what direction these trends might take. The two extreme states for each of the 4 key uncertain trends are explained below:

Economic growth, human development and governance (Trend numbers 1 and 4)

1. Most countries, including some of the ones where IRC has been concentrating its efforts, enjoy a prolonged period of political stability, and gradual improvements in democratisation and governance, accompanied by steady levels of economic growth.

2. A number of countries, including some of the ones where IRC has been concentrating its efforts, goes through a period of political instability as a result of set-backs in democratisation, regime changes and economic downturns.

Water scarcity (Trend number 3)

1. Rapid economic growth is accompanied by escalating demands for water to grow food and produce industrial outputs. Proceeds of economic growth are not reinvested in water infrastructure and institutional development, resulting in highly inefficient water use.
2. Under modest economic growth, water demand also increases modestly. Serious efforts are undertaken to support governance reforms and research to improve efficiency in water use (e.g. in more water efficient crop varieties).

Investment levels in WASH (Trend number 6)

1. Sector financing happens in a haphazard way, in which government, donor and NGO investments happen in parallel without having an oversight of total investments or how these are broken down. Whether there is a finance gap and how it can be filled will only appear along the way, and probably with a large percentage of inefficient investments as a consequence.
2. Further efforts are put into articulating more accurate WASH sector cost estimates and expenditure overviews. These are used to identify finance gaps and, above all, to target expenditure more efficiently and mobilise additional resources to fill the gap.

Changes in the aid landscape (Trend number 10)

1. There will be a reduction both in absolute and relative terms of “classic” bilateral and multilateral aid, and a concentration of aid in fewer countries; new entrants may or may not fill the gap.
2. Levels of “classic” bilateral and multilateral aid remain at current levels; new entrants, such as non-OECD donors and private endowment funds, increase their investments levels as well as their corresponding agenda-setting power in global WASH platforms.

Combining the more certain trends with the extreme states of the four uncertain factors, we generated the following **four outline scenarios** for the period 2011-2020:

- **Scenario 1: Two steps forward; one step back for the sector.** A number of countries, including ones where IRC concentrates its efforts, will experience a rocky ride of political and economic downturn, followed by improvements in governance. Bilateral and multilateral aid are reduced both in countries where things go well and show economic growth, and in countries with political instability. As funding becomes scarcer, and some governments are left to pick up the bill of increasing access to water and sanitation, the importance of sound financial management increases. Although the key issues IRC has been advocating resonate well, IRC's capacity to carry out its operations is severely interrupted in some countries.
- **Scenario 2: New players in a less stable environment.** A number of countries, including ones where IRC has been concentrating its efforts, experience a rocky ride of step-wise improvements in governance, interchanged with set-backs. Others experience an economic boom, including some of the new entrants to the aid sector. While bilateral and multilateral aid continues more or less on its current course, the new entrants drastically change the aid landscape, filling some gaps but also contributing to a more disorganised sector. While this offers opportunities, IRC's operations may be at times interrupted.
- **Scenario 3: Towards a post-aid WASH sector.** Many countries where IRC has been working enjoy a prolonged period of political stability combined with economic growth. In view of continued economic growth, aid is gradually reduced and concentrated on the poorest countries, fragile states and pockets of poverty. Water scarcity becomes a worldwide concern as a burgeoning middle class increases its water demand for food and industrial products, while efficient water resources management remains neglected. Demand for IRC's service will change in focus, and we may lose traditional funding streams.
- **Scenario 4: A multi-polar WASH sector.** Many countries, including ones where IRC has been working, enjoy a prolonged period of political stability combined with economic growth. This results in some of the better off, non-OECD countries investing in neighbouring and/or resource-rich countries, including in the WASH sector, while traditional donors are reduced to a niche role in fragile states and developed countries. With many new players, financing WASH will become even more haphazard. While this may provide opportunities, it is also expected to present challenges for IRC in terms of accessing these new financiers.

The above four draft scenarios were fast-forwarded to 2020, and narrative scenarios (stories) have been developed to give substance to the expected implications of each, i.e. we have described each scenario looking backwards from 2020 to stimulate the reader's imagination and to make the scenarios easier to assimilate. Into each of these narrative scenarios are woven the elements of the base scenario (as mentioned above, the points of commonality of which we can be certain).

It is important to note that these scenarios are intended to give flavour to the kinds of events that could impact on the WASH sector and on the work of IRC and other sector organisations. They are in no way intended to be seen as criticisms or pre-judgements, or favouring one country or set of countries over others in terms of economic, political, social and other developments between 2011 and 2020.

4.4.1 Scenario 1: Two steps forward; one step back for the WASH sector

Relief was felt by most participants listening to a review of progress towards the water and sanitation sector targets at the 9th World Water Forum in São Paulo in 2020. Finally, the global target for sanitation has been reached, five years after the original deadline of 2015; with some African countries having yet to achieve the target. In water supply, the new global target of universal access to water supply by 2027 is likely not to be achieved. Several countries in fact have seen a reduction in coverage as systems built before 2010 are coming to the end of their life span. The good news is that the revised water and sanitation targets are defined in terms of services and sustainable access, and attempts are underway to define a new set of global water and sanitation service delivery indicators.

Progress in achieving water and sanitation targets has also been frustrated by political unrest in various countries, including ones that are home to big populations including Pakistan, Ethiopia and Nigeria. Although the democratisation processes that these countries underwent have been widely hailed, they have resulted in a couple of years of stagnation for the executive branches of their governments, and donor funds were put on hold. Effects were even felt across borders. The combination of the swell in refugees from the civil strife in neighbouring Cote d'Ivoire and a small economic dip in Ghana resulted in a short-lived military coup in 2012 "to bring back stability". In response, donors froze their disbursements until the military government stepped down and called for elections three years later. During that period, net investments in water and sanitation halved.

Overall ODA to the WASH sector has decreased by 20% as compared to 2010, in real terms. In the first five years of the decade overall ODA had remained more or less stable, but afterwards started to decline markedly. This was triggered by public pressure in Europe to reconsider their development cooperation policies. The 27 European Union member states adopted a set of ODA eligibility criteria stricter than that of the OECD. Amongst others, this list eliminated eligibility of middle income countries to ODA, and nearly all European donors have subsequently concentrated their ODA on non-fragile, low-income countries, as well as on humanitarian aid.

The same public and political pressure also led to an even more vigorous pursuing of the aid effectiveness agenda, at least in those countries where ODA is still an important part of all WASH investments. The water and sanitation SWAp in Mozambique, with its annual turnover of US\$100 million, is now hailed as the best example of successful aid effectiveness in the sector. The annual WASH sector expenditure review, using a life-cycle cost approach, is an instrument being adopted by neighbouring countries, such as Zimbabwe and Malawi. The result of the SWAp is an impressive increase in coverage in access to water to 87%, and to sanitation of 76%. Critics, however, point to the enormous maintenance back-log that has been built up and the poor sustainability record of these investments. The latest joint sector review recommended an asset maintenance fund to be set up under the SWAp to address this gap.

As the economically better performing economies of Latin America and Asia have seen a drastic reduction in aid, they were asked to fill the budgetary gaps left by donors. While they have done so remarkably well, this has proved to be the end of many operations of European NGOs and research institutes in those two regions. While they were previously funded, directly or indirectly by donors, they now compete with local consultants, NGOs and research institutes. One of the few areas in which there is still demand for their services is in water resources management. The Netherlands-Indonesia Partnership Fund for Water Management is an example of collaboration between

researchers, authorities and the private sector from both countries to address issues of water scarcity and flooding in their respective countries. This collaborative model has been very successful and similar platforms are being set up in Vietnam, Colombia and Mexico.

The big ICT breakthrough of the decade was the rapid advances made in voice recognition and speech-to-writing software. Now standard on every hand-held computing tablet, with the definitive integration of mobile phones and laptops. Claiming it has revolutionised the WASH sector would be an overstatement, but it has definitely contributed to a range of improvements. For example, the remote monitoring programme of tube wells in Rwanda using such technology won the Water Innovation Award at the 2013 Stockholm World Water Week, and has become a standard component of many rural water supply programmes. Unfortunately, the easier access to monitoring data has not translated into improved sustainability of services. As the chair of the target review at the 9th World Water Forum said in his summary of the session, *“Having sustainability targets, indicators and monitoring tools alone are insufficient without accountable service providers.”*

4.4.2 Scenario 2: New players in a less stable environment

The “Tense Teens” is how this past decade to 2020 will be remembered. It started quite smoothly, with a slow but steady recovery from the financial crisis of 2008. But, crisis returned with more vigour in 2013, when emerging countries lost their trust in the US dollar as the global reserve currency. China dumped large stacks of its reserves on the world market, which put in motion a chain of events that economic analysts will probably continue writing about for at least another decade.

Among others, it paralysed global food markets for at least six months, until investors were clear about how much their depreciated dollar would be worth the next day. Although the market started working again once the major currencies re-stabilised against each other, much damage was already done. Some major food-importing countries, including Bangladesh, Burkina Faso and Sudan saw fierce anti-Chinese and anti-government riots, eventually leading to civil strife. Irrigation investments have gone up drastically. Much of these investments come from farmers’ own investments in pumps, wanting to benefit from high food prices; but cross-border investments by Middle Eastern and Asian countries have also been significant. The downside of this is the rapid increase of water scarcity in the areas where a New Green Revolution is taking place, particularly in Southern Africa, Madagascar and the Brazilian plains, which are experiencing increasing competition for water and sanitation services.

Southern Africa, on the other hand, benefited from the financial crisis in that it experienced stability and economic growth; in contrast to other countries, mineral wealth (e.g. oil in Angola, diamonds in Namibia and Botswana, and gold in South Africa) enabled a sustained economic boom. The profits were wisely invested in revitalising agriculture in Zimbabwe and Mozambique. Mozambique might even reach middle income status by the end of the year 2021 according to the most recent predictions. The adoption of the New Southern African Rand as a common currency in 2018 is an important step in the regional integration process in Southern Africa. The Southern Africa Development Fund has been instrumental in financing infrastructural development in the region, including in water and sanitation. However, serious doubts are emerging about the sustainability of investments. A critical evaluation report of its CLTS programme notes that *“at least 30% of toilets in*

rural areas are in disuse only two years after construction across the region". The environmental sustainability of investments in sewerage without corresponding investments in wastewater treatment is also a major concern. The sewerage crisis in Maputo last year with the ensuing riots, which cost 10 people their lives, is sad evidence of that.

The aftermath of the currency crisis saw a largely changed aid landscape. Not only regional funds such as the Southern Africa Development Fund and the Chinese-South East Asia Infrastructure Development Bank have entered the stage, but also a few important charities. An anonymous Hong Kong investor, who became a billionaire by accident by short-selling on US\$ on the same day that the Chinese government sold its US\$ bonds, has established his/her own charity dedicated to solving the world's food security problems. Its water branch has contributed to the irrigation boom, but also to research and innovation in water technology, leading to, amongst others, the low-carbon desalination technology, now available for less than 30 New Southern African Rands (approximately US\$ 98 based on 2011 figures). This is rapidly becoming a popular household technology in coastal villages and towns in Bangladesh, Mozambique and Indonesia.

In this changing playing field, the classic bilateral donors have re-defined their niche by focusing in countries of lesser interest to regional investors from Southern Africa and China, particularly the more fragile resource-poor countries in West Africa and Afghanistan. Surprisingly, the levels of ODA from European donors have remained more or less the same. The cynics note that this is more due to the rigidities of European consensus-based politics where it is always easier to keep things as they are, than due to a positive choice.

Whether this means that all citizens will have access to water and sanitation services in the nearby future, we do not know. As the *2020 Water Financing Outlook* of the World Bank states, *"Tracking private investments in water by farmers, loans by non-OECD investors to urban utilities, and bilateral aid to basic infrastructure in fragile states, is a near impossible task. Probably, it is even futile to do so at global level, as long as there is no broad global coordination of investments. Rather, each country should develop its own financial outlook and match its funding needs with possible investment sources."*

4.4.3 Scenario 3: Towards a post-aid sector

In hindsight the 2008 financial crisis only proved a small glitch in world economics. From 2011, the world economy made a remarkable recovery, with the engine of growth strongly located in emerging countries in Asia, resource-rich countries in Africa, and food-exporting countries in Latin America. As a result the OECD-DAC adds a couple of countries that have graduated to middle income level. Now, in 2020, only ten countries remain in the category of least developed countries – all of which have been plagued by long term civil strife.

The second part of the decade reads as the chronicle of a death foretold for aid. It started with the EU-Latin America summit of 2014 in Caracas pronouncing that Latin American countries would no longer need aid, with exception of the reconstruction effort in Haiti. All investments in WASH would now come from domestic investments or from loans through development banks. The expanded Association of Southeast Asian Nations countries followed suit two years later, stating that only their

member States still classified as least developed countries would accept aid for investments in water and sanitation. Even some African countries set targets of being ODA independent (Namibia in 2018; Ghana in 2020). These developments also suited northern donors, faced with growing criticism at home on the effectiveness of aid.

The gap left by the withdrawal of aid was not filled easily in all countries. The expected rise in investment by private companies never materialised. Neither did investments by emerging countries like China and Brazil – they rather invested in sectors with higher returns like agriculture and mining. In real terms, countries like Bolivia, Timor Leste and Cambodia faced sharp reductions in their budgets for water and sanitation when aid in fact stopped after the earlier statements to end aid. Exit and transition strategies became buzz words in the aid effectiveness debate in the end of the decade and, indeed, first indications of a more smooth transition are observed with the end of ODA in Namibia; Ghana will be the next test-case this year (i.e. 2020). An important element to these strategies has been the establishment of capital maintenance funds for water, following the example of the State of Andhra Pradesh in India. As the Chief Minister mentioned at its launch, “The best investment we can make is an investment in maintaining our own infrastructure.”

Whereas aid was gradually reduced and concentrated in the least developed countries, new partnerships started to arise between the North and emerging countries, particularly in research and innovation. The SAMBA (South Africa, Mexico, Brazil and Argentina) countries had long been associated with the Europe Framework Programme for research, but started to invest jointly in it since the EU-Latin America summit (with South Africa joining a year later). Their priority is research and technology development for a belated response to the ever-growing water scarcity crisis. Indeed, water resources started to become exploited and depleted more rapidly than foreseen at the start of the decade, in order to sustain industrial development in emerging countries and the growing middle classes. Pollution from industrial and domestic wastewater has compounded the water scarcity problem, particularly around the ever-expanding cities and towns. Advances in low-cost drip irrigation and ICT have enabled some improvements in water use efficiency in agriculture and industry, but far below what is needed to address the water crisis. The aid worker is now well on its way to join the ranks of extinct professions such as the postal worker and the blacksmith, unless s/he re-focuses on becoming an international consultant or researcher.

Ironically, the impact of the economic boom, and reduction of aid for water and sanitation services remains unknown since the MDG review in 2015. It became clear that all but a few of the least developed countries had met the water target; the fact that the sanitation target was missed in many countries was lamented, but no further action taken. In any case, with the switch to CLTS, this became rather meaningless, as many governments considered rural sanitation no longer a public responsibility. A meeting to establish the future of the JMP, did not manage to come up with new targets and indicators due to strong opposition from emerging countries. The Minister of Water from Vietnam clearly stated: *“We are not interested in counting toilets; we need to make a step change by investing in wastewater treatment in our cities. Other countries have other priorities, and that is fine. But let’s not try to have one set of indicators for all countries.”* The JMP subsequently wound down owing to lack of support.

4.4.4 Scenario 4: A multi-polar sector

“Welcome to the celebration of the First Anniversary of the United Nations Sanitation and Water Programme. Some of you will remember how we started as the Sanitation and Water for All or SWA in 2009 – an initiative of Northern donors, recipient governments, various United Nations bodies and civil society organisations. Now, we are a United Nations Agency, receiving support from most of the original supporters, but also utilities, regional development banks such as the Brazil Investment Bank, and representatives of Asian donors and philanthropic endowment funds”. With these words, the chairperson of the United Nations Sanitation and Water Programme opened its high-level meeting in 2020. His/her words invoked the multi-polar nature of the WASH sector.

Supported by the economic growth, this decade saw the development of various strong regional blocks, some of which have certainly contributed to addressing region-specific needs in water and sanitation, though mostly with clear self-interest. Vietnam, Indonesia and China increased their economic cooperation through the development of regional trade links and infrastructure. The reflections of this in the WASH sector were manifold. As part of its programme of creating world class Asian Cities, Vietnam, Indonesia and China have invested heavily in urban water and wastewater treatment infrastructure in cities in Laos, Nepal, Timor Leste and Bangladesh.

Brazil and Chile undertook a similar programme in Latin America, but by massive lending to their neighbouring countries for infrastructure development, including in sewerage and wastewater treatment. Although levels of debt are considered a high risk, it has helped in increasing the percentage of wastewater receiving primary treatment in the region from 21% in 2010 to 67% in 2019.

Even though Africa also experienced an economic boom, the impact on basic service delivery remained limited. When oil fields started to function fully in Ghana, Uganda and South Sudan, the net effect on their economies was limited because of the appreciation of their currencies and corresponding levels of inflation. In net terms, annual investment by these countries in water and sanitation has even reduced slightly over the last decade. The merger in 2015 between the Southern African Development Community and the East African Community into the South and East African Economic Union has given further impetus to economic integration in the region. But the establishment of the South and East African Economic Union Water Fund was a complete failure, as it duplicated efforts that its member governments were already taking, and was disband after only three years.

The European Union, with renewed confidence after overcoming the Euro crisis and introducing the New Euro in 2013 to which *all* European Union member states belong, has maintained its levels of bilateral aid over the past 10 years, but with important changes in focus. In response to the urbanisation trend, donor countries including the Netherlands, the United Kingdom and France shifted their focus on water and sanitation services to the urban poor. Among others, joint ventures between mixed and public utilities from these countries and utilities in Africa were established to transfer knowledge and skills in utility management, as well as to invest in expanding services in slum areas. This was accompanied by further promotion of technology suppliers and research institutes in the same field. However, a verdict of the European Court stated that at least two of these arrangements in Ghana and Kenya went against European competition legislation and had to be stopped immediately, at a great loss to some of the utilities involved. In other countries such

schemes were simply out-competed by joint venture utilities from South Africa, operating at much lower costs.

The emergence of these new regional investment initiatives triggered more open debate on aid effectiveness and division of labour with new investors as well. The strategic review of the EUWI in 2016 concluded that urban water supply and sanitation was an area in which the utilities from middle-income country donors could provide added value. The EUWI decided its niche area would be in rural water supply and sanitation only, and in those countries where the other blocks would not invest – countries such as those in Central Asia and West Africa (including the Horn of Africa).

A second important result of these discussions was the establishment of United Nations Sanitation and Water Programme in 2019, and the process to establish it. Following the relative success of SWA in achieving a better division of labour between the European donors, these same European donors started to demand that the United Nations reform itself with respect to its support to water and sanitation. Under pressure of a reduction in financial support from some key European donors to important United Nations agencies, reform took place, and all functions related to water supply, sanitation, health and hygiene, hitherto spread over various agencies and programmes, were brought together under United Nations Sanitation and Water Programme. It now is responsible for implementing water and sanitation facilities, setting global indicators and monitoring these, technical assistance, research, policy support, and water quality guideline development. Whether it can fulfil all these roles remains to be seen. As some sceptics say: *“this will just be another player in a field that is too crowded anyway”*.

5. Reflections

Having articulated the 21 trends and developed the four scenarios, this section aims to assess what this means for the strategies of IRC. The full proposed set of strategic choices is presented in our business plan 2012-2016 (IRC, 2011). Here we focus on a summary of how we have used the scenarios to inform our planning and strategic choices.

The scenarios point clearly to the continuation of differential development between countries and regions. Whereas the exact development path of individual countries cannot be predicted, we can be sure that these will be diverse. Countries at different developmental stages have different needs in terms of WASH services, and the information and knowledge needed to inform decisions on services delivery. We have recognised that we need to ensure that our portfolio of countries include countries in different developmental states and with different WASH needs. This will allow us to learn from the widest possible range of WASH sector development lessons, increasing our usefulness to other countries and situations in similar positions.

A key recent strategy of IRC has been to work in a limited number of focus countries. The scenarios point out, however, that this may be a risky strategy in that, if one or more of our focus countries were subject to significant instability, it would have a profound impact on our local operations. One response to this might be to “put more eggs in more baskets”, and expand the portfolio of countries. We have decided not to do so, as this may result in spreading our resources and efforts too thinly. Rather, we will opt for an approach of carefully tracking trends and scenarios at regional and country level in order to anticipate and respond appropriately to developments in our focus countries. This will never be water-tight, but can provide a way of reducing the risk of working in a limited set of countries.

The analysis is quite different when it comes to looking at our donors and partners, and their shifting priorities. On the one hand, one could argue that it is not so much the overall changes in the aid architecture that affect IRC, but rather the policies and approaches of those with whom traditionally we have worked most closely. Probably both are important. In response to the very different scenarios on this aspect, IRC seeks to take a proactive role by engaging more closely with the aid effectiveness discussion and donors. This is intended to be a way of assisting us to monitor the discourse and agenda of the donor community and sense how it is developing, but also to actively contribute to this debate, advocating for those issues close to the heart of IRC. But this still assumes IRC will mainly work with (Northern) donors. But there are scenarios, particularly the post-aid scenario, under which IRC will have to undergo a drastic re-think of the organisations’ vision and focus. Questions need to be answered such as: Should IRC move more into research, or focus on the aid segment? Could and should IRC try to work more with governments of developing countries and / or emerging economies? Although the answers to these questions do not need to be found immediately, IRC will anticipate this by seeking to have a more permanent presence in the countries where we work. We believe that will give us more flexibility to diversify our funding sources.

The other more important reason for the decision to have such country presences is to have more impact. As the scenarios point out, there will be increasing demand to show impact of our work. We believe that by having a permanent presence in countries and regions, we can have more impact – as

an integral part of sector developments, relevant platforms and forums, and provide more contextualised knowledge and information. A next challenge will thus be to show evidence for impact. It is therefore a strategic choice to put more emphasis on monitoring and learning from our work, and also to develop expertise in the field of impact assessment tools and methods. The use of ICT tools in this regard will receive specific attention.

The trends give guidance for the “content” agenda we need to take forward. It will focus on themes such as sanitation, sustainability of rural water supply, decentralisation, accountability and governance. One trend that requires a clearer choice is the one on water scarcity, as deepening our expertise in this could mean venturing outside our main area of focus. For now, we have decided to work on water scarcity issues only insofar as they impact on WASH.

Of particular interest is the fact that the development of the scenarios confirmed that the approach taken by IRC over the last few years is still relevant for the next few. That is hardly surprising in view of the earlier remark of slow rates of change in the sector. More importantly, the scenario analysis has provided us with better insights into the risks that come with the choices we are making, and the possible surprises that may await us and the sector. This is important in any business development. Finally, it has provided us with an opportunity to anticipate content trends, and search for new and better ways to innovate into the future.

We would like to end the paper by reflecting on how other WASH organisations might carry out similar assessments. This need not even be a large exercise resulting in a formal report and, of course, there can be too much horizon scanning and scenario planning if it comes at the expense of the implementation of pressing activities. But we believe the time is opportune as we approach the MDG target timeframe of 2015. The sector will also need to define a new horizon for future focus. Certainly there will be trends we overlooked, or ones we may have interpreted differently from other organisations. We therefore welcome any contributions or comments on this analysis of trends and scenarios with an ability to achieve greater sustainability in WASH services.

6. References

- AfricaSan, 2008. The eThekweni Declaration and AfricaSan Action Plan^{2nd} *African Conference on Sanitation and Hygiene (AfricaSan)*. Durban, 18-20 February 2008. Durban: AfricaSan.
- Akvo, 2011. *Akvo.org – see it happen*. [online] Available at: <<http://www.akvo.org/>> [Accessed 3 July 2011].
- AMCOW, 2010. *Country Status Overviews of water supply and sanitation*. [PPT online] Available at: <http://water.worldbank.org/water/sites/worldbank.org.water/files/0203SAN2_AMCOW.pdf> [Accessed 5 July 2011].
- Amnesty International, 2010. *Insecurity and indignity: women’s experiences in the slums of Nairobi, Kenya*. London: Amnesty International.
- Batchelor, C.H., Schouten, T., Smits, S., Moriarty, P.B. and Butterworth J.A., 2009. *Climate change and WASH services delivery: Is improved WASH governance the key to effective mitigation and adaptation?* Perspective Document for the 5th World Water Forum, World Water Council, Marseille, Co-operative Programme on Water and Climate (CPWC). The Hague: International Water Association and Gland: IUCN [online] Available at: <<http://www.waterandclimate.org/UserFiles/File/PersPap%2014.%20WASH%20Services%20Delivery.pdf>> [Accessed 3 July 2011].
- Batchelor, C., Smits, S. and James, A.J., in press. Adaptation of WASH services delivery to climate change (and other sources of risk and uncertainty). *IRC Thematic Overview Paper*, 24. The Hague: IRC International Water and Sanitation Centre.
- Bristol University, 2011. *Aquatest Research Programme*. [online] Available at: <<http://www.bristol.ac.uk/aquatest/>> [Accessed 3 July 2011].
- Butterworth, J., McIntyre, P. and da Silva, C. eds., in press. *SWITCH in the City: putting urban water management to the test*. The Hague: IRC International Water and Sanitation Centre.
- Carter, R. and Byers, M., 2006. *Landscaping of Technologies*. Project report for Landscaping and Review of Approaches and Technologies for Water, Sanitation and Hygiene: Opportunities for Action. Cranfield: Cranfield University, Aguaconsult and IRC International Water and Sanitation Centre. [online] Available at: <<http://www.irc.nl/page/35948>> [Accessed 3 July 2011].
- Chen, S. and Ravallion, M., 2008. *The Developing World is Poorer than Thought but No Less Successful in the Fight Against Poverty*. (World Bank Policy Research Working Paper 4703) [online] Washington, D.C.: World Bank. Available at: <http://siteresources.worldbank.org/JAPANINJAPANESEEXT/Resources/515497-1201490097949/080827_The_Developing_World_is_Poorer_than_we_Thought.pdf> [Accessed 3 July 2011].
- Clasen, T., 2010. Household Water Treatment and the Millennium Development Goals: Keeping the Focus on Health. *Environmental Science and Technology*, 44 (19), pp. 7357–60.
- Comprehensive Assessment of Water Management in Agriculture, 2007. *Water for Food, Water for Life: A Comprehensive Assessment of Water Management in Agriculture*. London: Earthscan and Colombo: International Water Management Institute.

Connectivity Scorecard, 2010. [online] Available at: <<http://www.connectivityscorecard.org/>> [Accessed 5 July 2011].

Davis, J., 2004. *Corruption in Public Service Delivery: Experience from South Asia's Water and Sanitation Sector*. (World Development 32: 1) [online] Elsevier. Available at: <www.elsevier.com/locate/worlddev> [Accessed 5 July 2011].

de la Harpe, J. and Butterworth, J., 2009. *Improving the framework? Institutional reform and corruption in the water sector*. (U4 Brief 28) [online] Bergen: Chr. Michelsen Institute (Published 2009) Available at: <<http://www.u4.no/document/publication.cfm?3518=improving-the-framework>> [Accessed 2 August 2011].

DFID-IWA, 2011. *Mind the Gap! – Assessing Human Resource Capacity Shortages in the Water and Sanitation Sector*. London: Department for International Development and International Water Association.

Diaz, C. and Fonseca, C., 2008. 'Working Together to Improve Aid Effectiveness in the Water Sector', European Union Water Initiative, Africa Working Group, December, 2008. The Hague: IRC International Water and Sanitation Centre.

Economist Intelligence Unit, 2010. *Democracy index 2010; Democracy in retreat*. [online] Available at: <http://graphics.eiu.com/PDF/Democracy_Index_2010_web.pdf> [Accessed 2 August 2011].

Faguet, J-P., 2003. *Decentralization and local government in Bolivia: an overview from the bottom up*. (Working Paper 29) [online] London: LSE Research Online. Available at: <http://eprints.lse.ac.uk/481/1/crisis_WP29.pdf> [Accessed 2 August 2011].

Fonseca, C. and Moriarty, P., 2006. *WASH scenarios for 2015: A trends analysis paper*. (Occasional Paper 41) [online]. Delft: IRC International Water and Sanitation Centre. Available at: <<http://www.irc.nl/page/28445>> [Accessed 2 August 2011].

Foster, V. and Briceño-Garmendia, C. eds., 2010. *Africa's infrastructure. A time for transformation*. [online] WA DC: Agence Francaise de Développement in assoc. with the World Bank. Available at: <http://siteresources.worldbank.org/INTAFRICA/Resources/aicd_overview_english_no-embargo.pdf> [Accessed 2 August 2011].

Freedom House, 2010. *Freedom in the World Comparative and Historical Data*. [online database] Available at: <<http://www.freedomhouse.org/template.cfm?page=439>> [Accessed 2 August 2011].

Garandeau, R., Casella, D. and Bostoen, K., 2009. *Evaluating and Improving the WASH Sector; Strengthening WASH Governance, Learning about Complexity and Assessing Change*. (Thematic Overview Paper Series 23) [online] The Hague: IRC International Water and Sanitation Centre (Published 2009) Available at: <<http://www.irc.nl/page/49104>> [Accessed 2 August 2011].

Ghanaweb, 2010. *Ghana attains middle income status*, [online] Available at: <<http://www.ghanaweb.com/GhanaHomePage/NewsArchive/artikel.php?ID=196857>> [Accessed 2 August 2011].

Helmsing, A.H.J., 2002. Decentralisation, enablement, and local governance in low-income countries. *Environment and Planning C: Government and Policy*, 20 (3), pp 317-40.

- IFAD – International Fund for Agricultural Development, 2010. *Rural poverty report 2011: new realities, new challenges: new opportunities for tomorrow's generation*. [online] IFAD. Available at: <<http://www.ifad.org/rpr2011/report/e/rpr2011.pdf>> [Accessed 3 August 2011].
- IMF – International Monetary Fund, 2011. *World Economic Outlook Update; Global Recovery Advances but Remains Uneven*. [online] IMF. Available at: <<http://www.imf.org/external/pubs/ft/weo/2011/update/01/index.htm>> [Accessed 3 August 2011].
- IRC, 2011. *Providing Sustainable Water, Sanitation and Hygiene Services at Scale: IRC's business plan for the period 2012-2016*. [report] May 2011 ed. The Hague: IRC International Water and Sanitation Centre.
- ITU – International Telecommunication Union, 2010. *ITU estimates two billion people online by end 2010*. [press release], 19 October 2010, Available at: <http://www.itu.int/net/pressoffice/press_releases/2010/39.aspx> [Accessed 2 August 2011].
- Joyce, J., Granit, J., Frot, E., Hall, D., Haarmeyer, D. and Lindström, A., 2010. *The Impact of the Global Financial Crisis on Financial Flows to the Water Sector in Sub-Saharan Africa*. Report 28. Stockholm: Stockholm International Water Institute.
- Lockwood, H. and Smits, S., 2011. *Supporting Rural Water Supply: Moving towards a Service Delivery Approach*. Rugby: Practical Action Publishing.
- Moriarty, P., Batchelor, C., Abd-Alhadi, F.T., Laban, P. and Fahmy, H., 2007. *EMPOWERS Guidelines, Methods and Tools*. [online] Amman: Inter-Islamic Network on Water Resources Development and Management. Available at: <<http://www.project.empowers.info/page/3344>> [Accessed 3 August 2011].
- Moriarty, P. and Verdemato, T., 2010. *Report of the International Symposium on Rural Water Services; Providing Sustainable Water Services at Scale*. Kampala, Uganda 13 – 15 April 2010. The Hague: Thematic Group on Scaling Up Rural Water Services. [online] Available at: <<http://www.scalingup.watsan.net/page/346>> [Accessed 8 August 2011].
- NextDrop, 2011. *NextDrop Homepage*. [online] Available at: <<http://nextdrop.org/>> [Accessed 5 August 2011].
- OECD – Organization for Economic Co-operation and Development, 2009. *DAC list of ODA recipients*. [online] Available at: <<http://www.oecd.org/dataoecd/32/40/43540882.pdf>> [Accessed 3 August 2011].
- OECD – Organization for Economic Co-operation and Development, 2010. *Creditor reporting system*. [online database] Paris: Organization for Economic Co-operation and Development. Available at: <<http://stats.oecd.org/WBOS/Default.aspx?DatasetCode=CRSNEW>> [Accessed 3 August 2011].
- Peer Water Exchange, 2011. *Peer Water Exchange Homepage*. [online] Available at: <<http://peerwater.org/>> [Accessed 3 August 2011].
- Pezon, C., Fonseca, C. and Butterworth, J., 2010. Background paper. In IRC International Water and Sanitation Centre, *IRC Symposium 2010 Pumps, Pipes and Promises: Costs, Finances and Accountability for Sustainable WASH services*. The Hague, The Netherlands 16-18 November 2010.

- The Hague: IRC International Water and Sanitation Centre. [online] Available at: <<http://www.irc.nl/page/55701>> [Accessed 27 July 2011].
- RWSN, 2009. *Myths of the Rural Water Supply Sector*. (Perspectives No. 4) [online] St Gallen: Rural Water Supply Network (Published July 2009). Available at: <<http://www.rwsn.ch>> [Accessed 27 July 2011].
- Schwartz, P., 1991. *The Art of the Long View: Planning for the Future in an Uncertain World*. NY: Currency Doubleday.
- Sumner, A., 2010. Global poverty and the new bottom billion: three-quarters of the world's poor live in middle-income countries. *IDS Working Paper*, 349. Brighton: Institute for Development Studies.
- SustainAbility, 2003. *The 21st Century NGO in the Market for Change*. [online] London: SustainAbility, UN Compact and UNEP (Published June 2003) Available at: <<http://www.sustainability.com/library/the-21st-century-ngo>> [Accessed 27 July 2011].
- Taleb, N.N., 2007. *The Black Swan: The Impact of the Highly Improbable*. London: Random House Publishers.
- The Economist, 2011. A more hopeful continent: The lion kings? Africa is now one of the world's fastest-growing regions. *The Economist Online*, [online] 6 July. Available at: <http://www.economist.com/node/17853324?story_id=17853324> [Accessed 8 August 2011].
- The Fund for Peace, 2010. *Failed States Index*. [online database] WA DC: The Fund for Peace. Available at: <<http://www.fundforpeace.org/global/?q=fsi-grid2010>> [Accessed 8 August 2011].
- The Right to Water and Sanitation, 2011. *The rights to water and sanitation in national law*. [online] Available at: <<http://www.righttowater.info/progress-so-far/national-legislation-on-the-right-to-water/>> [Accessed 8 August 2011].
- Toulmin, C. and Guèye, B., 2003. How will West African countries meet the MDGs? In: Satterthwaite, D. ed. 2003. *The Millennium Development Goals and Local Processes: hitting the target or missing the point?*. London: International Institute for Environment and Development, pp. 107-33.
- Transparency International, 2010. *Corruption Perceptions Index*. [online database] Available at: <http://www.transparency.org/policy_research/surveys_indices/cpi> [Accessed 8 August 2011].
- UNDP – United Nations Development Programme, 2010a. *International human development indicators*. [online database] Available at: <<http://hdr.undp.org/en/data/map/>>.
- UNDP – United Nations Development Programme, 2010b. *United Nations Development Programme Human Development Report; The Real Wealth of Nations: Pathways to Human Development*. New York: United Nations Development Programme.
- UN-Habitat, 2010a. The right to the city: bridging the urban divide. *Report of the fifth session of the World Urban Forum*. Rio de Janeiro, Brazil 22–26 March 2010. Nairobi, United Nations Human Settlements Programme.
- UN-HABITAT, 2010b. *State of the world's cities 2010/2011: bridging the urban divide*. London: Earthscan.
- Van der Heijden, K., 1996. *Scenarios - The Art of Strategic Conversation*. Chichester: John Wiley and Sons.

- WASHCost, 2011. *WASHCost Homepage*. [online] Available at: < <http://www.washcost.info/>> [Accessed 8 August 2011].
- WASH Technology News, 2010. News on water supply, sanitation and hygiene (WASH) technologies for the developing world. *WASHTechnology News*, [online] 22 November. Available at: <<http://wp.me/pceRa-5C>> [Accessed 5 August 2011].
- WaterAid, 2008. *Think local, act local: effective financing of local governments to provide water and sanitation services*. London: WaterAid.
- WaterAid, 2010. *Annual report 2009/2010*. London: WaterAid.
- WHO, 2010. *UN-water global annual assessment of sanitation and drinking-water (GLAAS) 2010: targeting resources for better results*. Geneva: World Health Organization.
- WHO/UNICEF, 2010. *Progress on Sanitation and Drinking-water: 2010 Update*. Geneva: World Health Organization. [online] World Health Organization and UNICEF. Available at: <http://www.wssinfo.org/fileadmin/user_upload/resources/1278061137-JMP_report_2010_en.pdf> [Accessed 5 July 2011].
- World Bank, 2009. *World Development Report. Reshaping Economic Geography*. Washington: World Bank.
- World Bank, 2010. *World Development Indicators*. [online database] Available at: <<http://data.worldbank.org/indicator/DT.ODA.ODAT.GN.ZS>> [Accessed 8 August 2011].
- World Bank, 2011. *World Bank Wikipedia Project*. [online] Available at: <<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/LACEXT/EXTLACREGTOPWATSUPSAN/0,,contentMDK:22759956~pagePK:34004173~piPK:34003707~theSitePK:855395,00.html>> [Accessed 8 July 2011].
- WRR – Wetenschappelijke Raad voor het Regeringsbeleid, 2010. *Minder pretentie, meer ambitie; ontwikkelingshulp die verschil maakt*. Wetenschappelijke Raad voor het Regeringsbeleid. Amsterdam: Amsterdam University Press.