DFID Department for International Development

UKaid from the Department for International Development

Water, Sanitation and Hygiene Portfolio Review

March 2012

Executive Summary

A. Purpose of the Review

1. This portfolio review (the WASH Portfolio Review) was agreed with ministers as part of discussions on the outcomes of the Bilateral Aid Review. The overall purpose of this review is to:
    - Present the available evidence on the benefits and cost effectiveness of interventions on water, sanitation and hygiene (WASH);
    - Assess the results, impact and value for money of DFID's work on water and sanitation;
    - Assess DFID's comparative advantage and capacity to carry out its work on WASH; and,
    - Assess the implications of the outcomes of the review for DFID.

    Options for increasing the level of DFID's ambition on water supply, sanitation and hygiene will be explored in a separate process. This Review will form the basis of discussions on scaling up results.

2. The scope of this review is restricted to drinking water supply, sanitation and hygiene for domestic use (commonly referred to as WASH) and excludes broader issues relating to water security such as managing water resources for agriculture, improved livelihoods and "productive" activities.

B. Understanding WASH service delivery

3. **This review focuses on interventions aimed at providing poor people with access to improved drinking water supplies, access and use of basic sanitation and the adoption of behaviours that reduce the health risks caused by poor hygiene, mainly washing hands at critical times.** Water, sanitation and hygiene interventions are closely interrelated. Hygiene and sanitation require water, and each intervention includes an essential element of social behaviour change, alongside infrastructure, without which the desired outcomes cannot be achieved.

4. **The incentives for improving WASH outcomes vary for different stakeholders, making programme design, implementation and evaluation challenging**. In terms of public expenditure, WASH interventions are often designed to capture positive externalities such as improved health outcomes. For users, however, the main drivers for investing in improved WASH services rarely relate to health alone, and include real and perceived benefits such as convenience (less distance to travel); time savings (productivity gains); security (for women and girls); dignity (for sanitation) and improved social status.

5. **Drivers of demand for water supply differ appreciably from those for sanitation necessitating different programming approaches, operation and maintenance regimes and financing models**. While demand from users for improved water supplies is normally strong, high costs and economies of scale demand substantial investment form agencies other than households (usually from public sources, although delivery may be through private providers). On-site sanitation solutions are less costly and individual households can potentially contribute a greater share of investment but much more time needs to be spent on generating demand ('sanitation marketing'). Urban sewerage systems require high levels of capital expenditure for infrastructure.

6. **Institutional service delivery models and technologies vary between urban and rural contexts**. Rural water supplies usually involve low-cost communal tapstands or protected wells and springs, shared by multiple households (sometimes up to 500 people) with users having to walk to access services. These are normally managed by

users and communities, with varying levels of support and oversight from public institutions (or this support may be contracted out to private providers or NGOs in some cases). Sanitation in rural areas is mostly low cost on-site solutions such as improved pit latrines for which government often provides some form of subsidy. In urban areas, water supplies are usually provided and managed by a utility; and levels of service can include communal standposts, but often involve providing water directly to domestic premises.

C. Main findings of the Review

The Evidence

7. **A review of the evidence suggests that there is "strong evidence"[1] that WASH interventions have a demonstrable impact on health outcomes, particularly in terms of reducing morbidity and mortality associated with diarrhoeal diseases, which are the biggest cause of death of children in Africa**. There is also strong evidence that lack of hygiene (handwashing) increases the risk of viral respiratory infections. There is medium evidence[2] that diarrhoea contributes to undernutrition. Trials are currently underway to test a plausible hypothesis that inadequate WASH is a contributing factor in cases of tropical enteropathy[3,4]. There is limited evidence (i.e. a small number of studies as this is a new area of study) that tropical enteropathy is a causal factor in undernutrition. There is strong evidence that improved WASH is associated with significant **time savings** and that this is highly valued by users.

8. Most of the available evidence on **the effect of WASH on education and gender is largely anecdotal or circumstantial** and statistically the evidence appears weak. There is strong evidence that lack of access to water continues to impact women significantly through the burden of water collection. Limitied, largely anecdotal evidence supports the view that non-health benefits of WASH interventions are substantial. Only by including such benefits can the true benefit of WASH interventions be adequately judged, therefore building the evidence base for non-health impacts is important.

9. **There is limited rigorous evidence regarding the best choice of context-specific delivery models for WASH programming**. A number of trials are underway that will improve the evidence base in this area, as well as ongoing action research which provides guidance for programming.

10. **The Literature Review[5] demonstrates that there has been little historical investment in rigorous research on both health and non-health benefits of WASH or on delivery models for changing hygiene and sanitation behaviours at scale.** This could partly be due to the specific challenges relating to developing and evaluating evidence on WASH. There are practical challenges relating to conducting blinded studies with regards to sanitation, as well as to randomising the intervention to individual

[1] For the purposes of the Literature Review, "strong evidence" is defined as: "several good quality studies that consistently show an effect. For example, randomised trials with a low risk of bias or observational studies showing a large effect size with a low potential for confounding".

[2] Defined as: "studies which show an effect but statistical support is weak due to insufficient study size. Or, studies which show significant effects but there is a risk of bias and confounding"

[3] Tropical enteropathy is a subclinical disorder of the small intestine.

[4] Humphry, JH (2009) Child undernutrition, tropical enteropathy, toilets and handwashing. Lancet 374 (9694): 1032-5

[5] In discussion with DFID's Research and Evidence Division, the decision has been taken that the Review cannot currently be classified as a DFID Evidence Paper and it has therefore been labelled a 'Literature Review'. However, there has been a great deal of interest in the Review from country offices and other stakeholders, suggesting that the document fills an important gap. The WASH Team in Policy Division intends to continue to refine the document with the aim of obtaining the required standard for classification as a DFID Evidence Paper.

households and communities whilst avoiding the contamination of control populations. A limited number of high quality studies demonstrate that these challenges can be overcome.

11. Key gaps in evidence include:

- The relative effectiveness of different sanitation interventions;
- Environmental transmission of excreta-related infections and the relative role of different pathways;
- Health impacts of poor WASH beyond diarrhoea;
- Non-health impacts associated with poor WASH;
- How vulnerable populations are affected and how they can be reached;
- Achieving behaviour change for hygiene and sanitation at scale;
- Costs and cost effectiveness across different social and physical contexts; and
- Evidence of models that work at scale, particularly for urban sanitation.

Mapping the DFID portfolio

12. **The DFID portfolio is concentrated on achieving results in Sub-Saharan Africa and Asia.** During the period March 2008 – October 2009 DFID bilateral programmes provided access to clean drinking water for 2.7 million people in Sub-Saharan Africa and 3.1 million people in South Asia, and provided access to improved sanitation for 1.8 million people in sub-Saharan Africa[6].

DFID expenditure on Water and on WASH *(£ million)*

	2006/07	2007/08	2008/09	2009/10	20010/11
TOTAL WATER AND SANITATION	**148.0**	**151.7**	**189.5**	**206.8**	**245.2**
of which:					
Bilateral	60.4	71.7	90.1	106.8	114.1
Multilateral	87.6	80.0	99.5	100.0	131.1
TOTAL WASH	**108.6**	**105.8**	**140.4**	**135.5**	**171.7**
of which:					
Bilateral	**49.6**	**53.0**	**74.1**	**68.8**	**84.5**
Multilateral	**59.0**	**52.7**	**66.3**	**66.7**	**87.2**

13. **DFID total financial allocation for WASH has increased over the past ten years**. From 2006/07 to 2010/11 DFID's total spending, including imputed multilateral contributions, has increased from £109m to £172m (by 58%). This was broadly in line with increases in DFID's overall framework over this period meaning that expenditure on WASH as a proportion of DFID's expenditure has remained at around 2%.

14. **Over the last five years, DFID's *bilateral* spending on WASH has increased from £49.6m to £84.5m in 2010/11**; an increase of 70%. Total bilateral spend in this period was £330m. At around 2%, WASH remains one of DFID's smallest bilateral portfolios. The majority of this spending (83% over the last five years) has been directed to "basic drinking water"; mostly low-cost rural water supply and sanitation schemes.

15. **How DFID channels its bilateral support to WASH programmes has changed over the last five years, with a growing reliance on multilateral organisations for delivering results**. By 2010/11, 53% of WASH bilateral spend was through multilateral organisations compared to just 16% in 2006/07. This is in addition to DFID's imputed multilateral expenditure, which amounts to £87.2m - equivalent to 51% of DFID's total expenditure on WASH. The World Bank (IDA), The European Commission, African

[6] There are questions over the approach to measurement of people receiving access to improved sanitation in South Asia during this period, therefore these figures have not been included here.

Development Bank and UNICEF are the major partners. Over the same period, the share of WASH spent through NGOs has fallen from 20% to 6%. In 2010/11, 88% of WASH spend classified as bilateral was through country and regional programmes; the rest being spent by policy and international programmes through DFID's Policy and Research and Evidence Divisions.

16. **DFID's aid to WASH is concentrated in Africa and Asia with programmes in Africa accounting for 58% of bilateral spend on WASH, compared to 30% in Asia.** Over the last five years, almost half of the total WASH spend has been allocated to six countries: Ethiopia, Bangladesh, Nigeria, Tanzania, Sudan and Zimbabwe.

Value for money

17. Considering VfM in WASH interventions in general terms: The WHO has carried out analysis of the cost effectiveness of various health interventions in terms of US$ per DALY averted. **The WHO findings are that WASH interventions are 'highly cost-effective' when compared to other health interventions using standardised measures of US$ per DALY averted**[7]. Sanitation and hygiene promotion are among the most cost effective interventions for controlling endemic diarrhoea (approximately US$3 per DALY averted for hygiene promotion and US$11 for sanitation promotion), ranking higher on this basis than many other health interventions, including combating malaria, tuberculosis and HIV/AIDS[8]. The cost-effectiveness ratios for sanitation construction and handpumps or standposts are less favourable ($270 and $94/DALY) but still fall into the 'highly cost effective' category for the low income settings in which DFID's work is focused.

18. Considering DFID's WASH portfolio: **the analysis in this paper finds that DFID's portfolio has provided good value for money.** The WASH portfolio targets those countries where the needs are greatest and focuses on the types of interventions that are most likely to achieve the MDGs. Good resource allocation vs. need is a necessary precondition for achieving VfM, but impact will be determined by delivery.

19. Considering the value for money of specific interventions in terms of numbers of people provided with access, this review finds that **DFID-supported WASH programmes report significant results against costs**. During the period March 2008 – October 2009 DFID bilateral programmes provided 2.7 million people with access to clean drinking water and 1.8 million people with access to improved sanitation in sub-Saharan Africa. Further, analysis of individual DFID supported WASH programmes suggests that programmes are achieving substantial results in relation to costs. For example, the SHEWA-B project in Bangladesh aims to improve the hygiene behaviour of 30m people and provide sanitation to 5.1m people over 5 years. It is a highly ambitious project but recent reviews show that it is largely on track to reach this target. The DFID contribution is £36m so the overall cost per beneficiary is estimated to be £1.56 for hygiene promotion alone. Another good example of DFID achieving results at scale is the Pakistan North West Frontier Project which provided water and sanitation facilities to 1.6m people over 5 years (Box 7, paragraph 71). The total DFID contribution was £6.9m so while the target cost per beneficiary was £6.90, the actual cost was around £4.30 for water and sanitation. Results for a sample of programmes are summarised in Table 18 (paragraph 71) in the main text. No studies are available assessing the number of DALYs averted as a result of DFID investment (this would require in-depth impact assessments which have not been carried out to date). However, we can extrapolate from WHO figures to estimate the number of DALYs averted as a result of DFID programmes. For example, in the

[7] WHO Commission on Macroeconomics and Health considers interventions with a cost-effectiveness ratio of less than three times the national GDP to be 'cost effective', and interventions with a ratio equal to or less than GDP to be 'highly cost-effective'.

[8] Laxminarayan, Chow and Shahid-Salles, 2006. Note that global comparisons should be viewed with caution.

current SR period, DFID estimates that investment in India will directly save 7 million DALYs at a cost of £63 per DALY attributable to DFID[9].

20. **Costs per beneficiary tend to be higher in Africa than Asia and vary widely, but generally still represent good value for money given potential health and economic impacts**. Cost per beneficiary figures also vary widely between DFID projects, and can be explained by factors such as population density, state fragility, restrictions in the trade of goods and remoteness of populations. For example analysis of project documents shows that the per capita cost of providing rural water supplies in larger, more densely populated countries such as Nigeria (£1.5), Ethiopia and DRC (£9) is lower than in smaller, less densely populated countries such as Malawi (£24), Mozambique (£25), Tanzania (£15.7) and Zambia (£15.2). Experience shows that per capita costs increase sharply in post conflict situations (e.g Liberia and Sierra Leone(£52)), countries with remote or inaccessible populations such as Nepal (£50) and countries where trade in goods and services is restricted (e.g. OPT). To put this in perspective, OfWat says the average cost of providing a new household water supply connection in the UK currently ranges from £274.50 to £977[10].

21. **Overall there was a strong correlation between DFID WASH programmes and need when measured in terms of the proportion and number of people without access and the burden of WASH-related disease.** This is particularly important as the vast majority of DFID's bilateral spending on WASH over the past five years was channelled through country programmes (88% in 2010/11). There are DFID WASH programmes in 15 of the 20 countries with the highest numbers of people living without access to water globally, and Indonesia is the only top-five country which did not receive aid for WASH.

22. **UK aid to WASH, although relatively small in comparison to other donors, is well targeted towards meeting the MDGs and towards reaching poor people in low-income countries**. Between 2000 and 2009, less than 50% of water sector global aid flows were allocated to Low Income Countries (LICs) - the majority went to Middle Income Countries (MICs). Furthermore, the share allocated to basic services has fluctuated and only increased slowly despite MDG commitments. By contrast, in 2009 the UK was only the sixth largest bilateral donor by commitments to the water sector, with Japan, Germany, France Spain and the US all making larger commitments, but was the second largest donor of aid for basic services in LICs[11].

23. **DFID's support to private sector involvement in WASH is leveraging expertise and innovation. Mobilising private investment in the sector remains challenging in low-income countries, but private operators continues to play a significant role in the delivery of water and sanitation services. DFID will continue to expand its support to innovative work to overcome barriers to private investment and to mobilise private sector expertise in service delivery.** DFID is supporting private sector involvement in WASH through a number of channels including public-private partnerships, development finance institutions, output-based aid and technical assistance to domestic private sector providers (Box 12, paragraph 81). However, challenges remain around mobilising private sector finance for WASH. The Private Infrastructure Development Group facilities spend only approximately 1% of their funds on water and sanitation despite efforts to channel more funding to WASH, reflecting well-established

[9] DFID India BAR 'offer'

[10] OfWat (2010) Comparative study: cost of new water supply connection (Section 45 Water Industry Act 1991)

[11] The largest donor was Japan, however, their figure is influenced by the very large increase in this category in 2009. There is some doubt as to whether this increased amount is based on accurate use of the CRS purpose codes

market failures that inhibit international capital investments in the sector[12]. However, there is currently innovation in this field, including expanded Output-Based Aid approaches, increasing levels of donor support to the domestic private sector and models of blended finance whereby donors provide an element of concessional finance in order to leverage in international private finance.

24. **The majority of DFID's funding for WASH is either through imputed contributions to multilateral organisations (MOs) or through the use of bilateral funds for programming through multilaterals ("multi-bi").** The main multilaterals engaged on WASH in low-income countries are: the World Bank, EC, UNICEF (who were all assessed as offering "very good" value for money in the MAR) and AfDB (assessed as offering "good" value for money to DFID). Table A below provides illustrative results achieved by these MOs during recent reporting periods while Table B shows DFID imputed spend on WASH through each of these MOs for 2008-10.

Table A: Illustrative results achieved by the four main Multilateral Organisations engaged in the WASH sector in low-income countries

Multilateral Organisation	**Period**	**People provided with improved access (millions)**
IDA	2008 - 2010	Water: 31 Sanitation: 1.6
UNICEF†	2010	Water: 19 Sanitation: 19 Hygiene promotion: 42
EC¥	2004 - 2009	Water: 31 Sanitation: 9.3
AfDB*	2008 - 2010	Water and Sanitation: 8.5*

†UNICEF's figures include humanitarian activities in 60 countries where it led or co-led the WASH cluster or similar coordination mechanism. DFID does not include support to humanitarian WASH interventions in its reporting because they are generally not sustainable in the long term. Representatives from UNICEF have confirmed that they aim to distinguish between humanitarian and development results in their next annual report.
¥ Note that in the MAR DFID identified deficiencies in EC reporting against results, and in particular how the results the EC reports relate to inputs from different EC institutions and modalities. DFID is in discussions with the EC over how to improve their reporting against results.
*The AfDB is not able to provide disaggregated figures for water and sanitation at this time.

Table B: DFID imputed multilateral expenditure on WASH £ million

	2008/09		**2009/10**		**2010/11**	
	DFID contribution to org. (£m)	**Imputed WASH spend (£m)**	**DFID contribution to org. (£m)**	**Imputed WASH spend (£m)**	**DFID contribution to org. (£m)**	**Imputed WASH spend (£m)**
AfDB	139	11.9	139	11.9	139	11.9
EC	1,154	27.9	1,186	28.7	1,347	32.6
World Bank	574	25.8	560	25.2	927	41.7
UNICEF	17	0.7	22	0.9	24	1.0
Total		66.3		66.7		87.2

[12] Principally: (1) economic rates of return are far higher than financial rates of return due to externalities including health and non-health impacts; (2) the presence of natural monopolies, and; (3) the inability of the poorest in some contexts to pay connection charges and user fees, and thus concerns over equity.

25. **There is some evidence that DFID WASH programmes support innovation but mostly through pilots and not at scale**. There are two important exceptions. The first is Community Led Total Sanitation – an approach that focuses on empowering communities to take responsibility for eliminating open defecation - that was actively supported by DFID and has subsequently spread from Asia to Africa. The second is Sustainable Services through Domestic Private Sector Provision (SS-DPSP) that was piloted with DFID support in 2009 and has now been mainstreamed as a core business area within the Water and Sanitation Programme (WSP) operations around the world.

D. Recommendations for optimising value for money in DFID's portfolio

A number of actions that are largely cost-neutral can be adopted to further improve the value for money of DFID's current programming:

26. **Be more systematic about monitoring and reporting results and measuring value for money in WASH programmes**. The review concluded that methods for calculating and comparing beneficiary numbers from different data sources lack consistency. DFID should continue to work on improving and standardising indicators and support wider efforts to benchmark and standardise monitoring and reporting within the sector and improve transparency in financial reporting.
27. **Refine indicators to achieve a better balance between extending services and building sustainability.** DFID should consider including targets (or process indicators) in our agreements with key partners to incentivise a focus on sustainability rather than purely increasing access. DFID can learn from what others are doing in this area. Sustaining services, particularly in water supply, is a growing concern and threatens to undermine the potential impact of WASH sector investments**.**
28. **Exploit the potential for efficiency gains through improved integration of WASH and health programmes to achieve health impacts**. DFID is planning WASH programmes in 13 of the 26 countries where it has health programmes**.** Given the potential impact of WASH on health it is important to consider how far DFID's WASH investments support planned investments in health. There are lessons to be learnt from recent programming innovations in India.
29. **Make WASH outcomes a feature in DFID engagement strategies with relevant multilateral organisations to ensure that WASH indicators are embedded in their corporate reporting systems**. Multilateral organisations help deploy over 75% of DFID's overall expenditure on WASH. How these organisations (WB, EC, AfDB, UNICEF) target and programme their resources largely determines the value for money achieved from DFID's investments on WASH. The four most important multilateral organisations for WASH programmes were evaluated by the Multilateral Aid Review to provide "very good" or "good" value for money. DFID could engage with these four MOs to improve their reporting systems.
30. **Develop indicators that measure equity outcomes**. DFID needs more evidence about the relative impact of WASH investments across wealth groups and between men and women. DFID also needs operational research to develop effective programming approaches that best target the poorest, as well as improving our understanding of the incremental costs of such approaches. There is evidence that even where progress on sanitation has been achieved, it tends not to be equitable. At the same time there is evidence and modelling that suggests that the benefits of WASH services are greatest when the poorest are provided with access.
31. **Ensure the right technical capacity to deliver value for money in WASH investments.** Technical competencies for WASH cuts across a number of cadres, but lies primarily within the competency framework of infrastructure advisers. A number of

other advisory cadres also provide inputs into WASH programmes which makes it difficult to assess overall WASH capacity in DFID. The network of advisers working on WASH currently remains largely informal and does not have a strong identity within DFID. Advisers overseeing WASH programmes should have more structured learning and support.

32. **Work on overcoming market failures to private sector provision of WASH services.** DFID should continue to support and engage in innovation in overcoming market and non-market barriers to mobilise private investment in WASH and to leverage private sector expertise in service delivery.

E. Challenges for the future of WASH Programming in DFID

33. **Is there a gap?** This review of evidence and DFID programmes suggests there are research, policy, coordination and programme gaps in water, sanitation and hygiene across most of the countries where DFID is currently working.

34. **DFID could consider increasing investment in research and evidence in line with the scale and severity of WASH problems in developing countries**. In particular, more **operational research based on rigorous programme evaluations married to large programmes** is needed, as is greater attention to the additive effects of integrating WASH within health and education programmes. The Literature Review concluded that the WASH sector requires more rigorous evidence on: (i) better quantifying the health and non-health impact of WASH programming; (ii) more systematic analysis evaluating the effectiveness of different approaches that deliver results at scale, and (iii) a better understanding of unit costs and cost drivers in different contexts.

35. **DFID could consider working with other stakeholders to build on efforts to strengthen political leadership and coordination of the global WASH sector, and increase support for initiatives which improve financial transparency and accountability for results.** DFID is regarded by stakeholders as playing an important leadership role in championing improvements in the international system and as an authoritative source of knowledge and evidence. DFID has been a prime mover in promoting the Sanitation and Water for All Partnership as well as supporting global monitoring efforts.

36. **DFID could consider a strong focus on sanitation in policy and programming work on WASH.** At current rates of progress the sanitation MDG target will be missed by over one billion people and will not be met until around 2049. There are more people living without access to sanitation today than in 1990. Sub-Saharan Africa and South Asia are the regions most off-track.

37. **Rapid population growth in urban areas presents new challenges.** Historically, the majority of DFID investment in WASH has been in rural areas, where 70-80% of those without access live, and in basic rather than large systems. While DFID has limited comparative advantage in the world's mega-cities, there is potential and some limited expertise and experience for DFID to draw on to add value in secondary towns by focusing on peri-urban and low income areas.

38. **Improved household access to water and sanitation will be critical to reducing vulnerability to climate change as it reduces susceptibility to climatic variability.** A study funded by DFID and undertaken with WHO[13] concluded that investment in WASH is an important component of climate adaptation strategies at national and international levels. It also indicated that institutions and management arrangements are as critical as the type of infrastructure in ensuring the resilience of WASH service delivery options.

[13] WHO & DFID (2009) Vision 2030: The Resilience of Water Supply and Sanitation in the Face of Climate Change

DFID's WASH portfolio in transition: comparative advantage

39. A review of operational plans for the period 2011 – 2014 indicates that:

    a. During the period, DFID's bilateral programmes will provide 18.5 million people with access to clean water, 23.7 million people with access to improved sanitation and reach 32.1 million people with hygiene promotion;
    b. DFID's programming will remain targeted to the poorest countries, with a greater focus in Africa;
    c. DFID will have a greater focus on achieving results in sanitation;
    d. DFID will continue relying on the same key multilateral partners.

40. Until Business Planning is completed, it will not be possible to evaluate the balance of the portfolio between systems strengthening and sustaining services on the one hand, and direct delivery of capital programmes on the other, or on how equity and gender issues are addressed, or whether DFID is doing enough to leverage in resources from the private sector.

41. **DFID is widely regarded as a leading player with a political or leadership role that has shaped the development of the WASH sector over the past decade.** DFID has promoted and supported a number of global initiatives that have influenced the way in which WASH aid is allocated, including global monitoring of progress against the MDGs (the biennial reports of the WHO / UNICEF Joint Monitoring Programme and the UN-Water / WHO Global Analysis and Assessment of Sanitation and Drinking-Water) and more recently the Sanitation and Water for All partnership and its High-level meeting with finance ministers of partner countries. Partners report that DFID's credibility as a WASH donor stems from its ability to combine policy and research expertise and extensive programme experience on the ground.

42. **A strength of the existing WASH portfolio is the ability to draw on relevant expertise from other parts of DFID (e.g. public financial reform, governance and aid effectiveness) and draw lessons from initiatives that DFID supports in other sectors** (e.g. Education Fast Track Initiative, International Health Partnership, Global Project for Output Based Aid, International Aid Transparency Initiative). DFID has a reputation for being focused on poverty, for being willing to invest resources in policy, research and evaluation, and for challenging and supporting partners and peers to demonstrate results and ensure value for money.

43. **Analysis in this report suggests that DFID has made a significant technical contribution to the sector through its support to knowledge and research products and innovations in policy and programming.** DFID has a track record of supporting the generation and dissemination of knowledge and research in the water sector including through its long running Engineering Knowledge and Research (EngKAR) programme and more recently through its investment in the Sanitation and Hygiene Applied Research for Equity (SHARE)[14] research consortium, which is currently the largest research programme on sanitation and hygiene in the world (£10m over five years).

44. **DFID's financial contribution to the sector is significant, particularly in relation to its focus on the MDGs**. As DFID's funding is concentrated in a number of the poorest countries, this makes it the largest donor in a number of countries that are critical for achieving the MDGs in Africa.

[14] www.shareresearch.org

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List of Tables, Figures and Boxes

List of Acronyms

ADB	Asian Development Bank
ADF	African Development Fund
AfDB	African Development Bank
AICD	Africa Infrastructure Country Diagnostic
ARI	Acute Respiratory Infection
BAR	Bilateral Aid Review
CLTS	Community-Led Total Sanitation
CSO	Country Status Overview
DALY	Disability Adjusted Life Year
DHS	Demographic and Health Surveys
EC	European Commission
EDF	European Development Fund
EngKAR	Engineering Knowledge and Research Programme
EUWI	European Union Water Initiative
FAN	Freshwater Action Network
GLAAS	Global Analysis and Assessment of Sanitation and Drinking Water
GPOBA	Global Partnership on Output Based Aid
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IEG	Independent Evaluation Group (World Bank)
IFC	International Finance Corporation
IFID	International Financial Institutions Department
JMP	Joint Monitoring Programme
LIC	Low Income Country
MAR	Multilateral Aid Review
MDG	Millennium Development Goal
MIC	Middle Income Country
MICS	Multi-Indicator Cluster Survey
M&E	Monitoring and Evaluation
MO	Multilateral Organisation
NGO	Non-Governmental Organisation
OBA	Output-based aid
ODA	Overseas Development Assistance
ODF	Open Defecation Free
OECD DAC CRS	Organisation for Economic Cooperation and Development: Development Assistance Committee Creditor Reporting System
OPs	Operational Plans
OPT	Occupied Palestinian Territories
PER	Public Expenditure Review

PIDG	Private Infrastructure Development Group
PPIAF	Public-Private Infrastructure Advisory Facility
RED	Research and Evidence Division
RWSSI	Rural Water Supply and Sanitation Initiative
SHARE	Sanitation and Hygiene Applied Research for Equity
SI	Standard Indicator
SID	Statistics on International Development
SNTA	Sub-National Technical Assistance
SR Period	Spending Review Period
SSA	Sub-Saharan Africa
SS-DPSP	Sustainable Services through Domestic Private Sector Provision
SWA	Sanitation and Water for All
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
VfM	Value for Money
VIP Latrine	Ventilated Improved Pit Latrine
WASH	Water, Sanitation and Hygiene
WASHPR	WASH Portfolio Review
WHO	World Health Organisation
WRM	Water Resources Management
WSP	Water and Sanitation Programme
WSS	Water and Sanitation Services
WSSCC	Water and Sanitation Collaborative Council
WSUP	Water and Sanitation for the Urban Poor

Chapter 1. Context

Background

1. Between 2011 and 2015, DFID has committed to give 15 million people access to clean drinking water, improve access to sanitation for 25 million people and improve hygiene for 15 million to help stop people getting sick. During this period DFID will spend a total of up to £805 million[15]. As of July 2011 DFID has bilateral WASH programmes in 14 out of 27 priority countries and is providing access to improved water and sanitation and promoting hygiene in other countries through multi-lateral and other channels. DFID currently has 4 dedicated WASH adviser posts in the UK policy team, and 11 country-based infrastructure advisers with responsibility for WASH[16]. DFID is regarded as an important player in the global WASH sector and works in partnership with a range of government and non-government stakeholders at local, national and international levels.

2. The goal of DFID's spending on WASH is to contribute towards achieving the Millennium Development Goal (MDG) 7 targets on water and sanitation (i.e. to halve by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation), a priority sub-pillar identified in the Bilateral Aid Review (BAR). There is some evidence from academic sources that DFID spending on WASH is likely to contribute to progress on other MDG priorities identified in the BAR (including health, education, poverty, hunger and vulnerability)[17] and forms an important component within wider DFID strategies including wealth creation, governance and accountability and climate change adaptation[18].

3. DFID recently set out seven guiding principles for increasing access to clean water and safe sanitation: 1) to ensure excellence in our DFID country office programming; 2) link DFID's work on water, sanitation and hygiene especially closely with our work on health; 3) increase our focus on gender and disability; 4) ensure cost-effectiveness and value for money; 5) directly empower communities and help them to hold their governments to account; 6) build further evidence and test innovative approaches; and 7) work with others in the sector to ensure a collective response to this global crisis[19].

Purpose and scope of the review

4. The Investment Committee was commissioned to assess this review of DFID's existing portfolio of investment in water and sanitation in order to assess the value for money of current investments and to identify changes that will improve value for money in future (Box 1). The scope of the WASH portfolio review (WASHPR) is limited to spending on water, sanitation and hygiene and does not include related DFID investments in management and protection of water resources, river development, and solid waste management[20].

[15] Estimate based on initial projections in Operational Plans for 2011-2015

[16] Other DFID staff also contribute to WASH investments including health, education, governance, social development, urban, private sector and environment advisers.

[17] As discussed below, evidence on the non-health outcomes of WASH is limited to date. However, anecdotal evidence of these links abounds and this has been identified as a key area for further research.

[18] The degree to which WASH is effectively integrated within wider strategies is discussed in subsequent sections.

[19] MoS Adjournment Debate [15 December 2010]

[20] See Annex 1: Defining the WASH Sector

Box 1: Value for Money in WASH

The WASHPR has a particular focus on the following aspects of value for money:

a) *aid allocation* – assessing whether DFID funds are being invested in those countries where they are likely to have the greatest impact
b) *results achieved* – reviewing results achieved through DFID bilateral and multi-lateral spending on WASH
c) *portfolio performance* – examining the strengths and weaknesses of recent and ongoing programmes supported by DFID
d) *cost effectiveness* – assessing whether DFID funds are being used to support those interventions that have the greatest impact on poor people's access to WASH
e) *efficiency* – examining DFID capacity to efficiently allocate and spend WASH funds including advisory capacity and skills and corporate systems

5. The review was conducted in a short timeframe (June-September 2011) and involved a combination of desk based analysis and interviews with partners and with water and sanitation advisors in country offices. It included a review of available evidence relating to the impact and effectiveness of public investment in WASH[21]; analysis of resource allocation versus needs; mapping of bilateral and imputed multi-lateral spend and results; analysis of WASH operational plans; analysis of multi-lateral strategies and plans; analysis of donor activity and DFID comparative advantage; assessment of value for money based on a sample of recent and ongoing projects[22]; and assessment of advisory capacity and skills. In addition, there were specific background papers on the private sector, WASH options and their resilience to climate change and equity in relation to access to sanitation. The limitations of available information are discussed.

Progress towards WASH MDGs and beyond

6. Millennium Development Goal 7, which addresses environmental sustainability, includes a target **'to halve by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation'**. The WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation (JMP) uses data collected by national statistics offices and other relevant institutions through household surveys and censuses[23] to produce comparable estimates of progress towards these targets at national, regional and global levels. The JMP produces a progress report every 2 years and has played a key role in developing norms and standards for monitoring progress in extending access including the introduction of water supply and sanitation 'ladders' to classify service improvements. These are now used widely within the sector to enable further disaggregated analysis of trends in access to water and sanitation (Table 1). It is important to note that there is currently no equivalent set of reliable data for estimating the prevalence of hygiene behaviours such as handwashing with soap as these are not routinely addressed in national household surveys.

Table 1: JMP classification used in water supply and sanitation 'ladders'

The water ladder has 3 'rungs'	The sanitation ladder has 4 'rungs'
1. Unimproved sources 2. Other improved sources 3. Piped on premises	1. Open defecation 2. Unimproved facilities 3. Shared facilities 4. Improved facilities

[21] See Annex 2: DFID Literature Review for Water, Sanitation and Hygiene (WASH) prepared by SHARE

[22] The sample of projects selected for analysis accounted for 70% of DFID spending on WASH between 2007/8 and 2009/10

[23] See www.wssinfo.org for a full description of the methodology. Over 600 surveys and censuses are used, including Demographic Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICs). JMP is continuously working to improve the monitoring of different aspects of WASH access and has established Task Forces which have recently produced technical reports on Monitoring Water Quality and Monitoring in Urban Settings.

7. With less than four years left to meet the 2015 target, **the JMP estimates that 2.6 billion people do not have access to improved sanitation and 884 million people do not have access to an improved water supply**[24]. Projections based on these figures suggest that while the global target for drinking water is likely to be met, the target for sanitation will be missed by over 1 billion people (Figure 2). The proportion of the world's population with access to improved water supply increased from 77% in 1990 to 87% in 2008 but access to improved sanitation increased from 54% in 1990 to just 61% in 2008. **The MDG review summit in 2010 concluded that sanitation is one of the most off-track MDG targets**.

Figure 2: Sanitation: world is projected to miss the MDG target

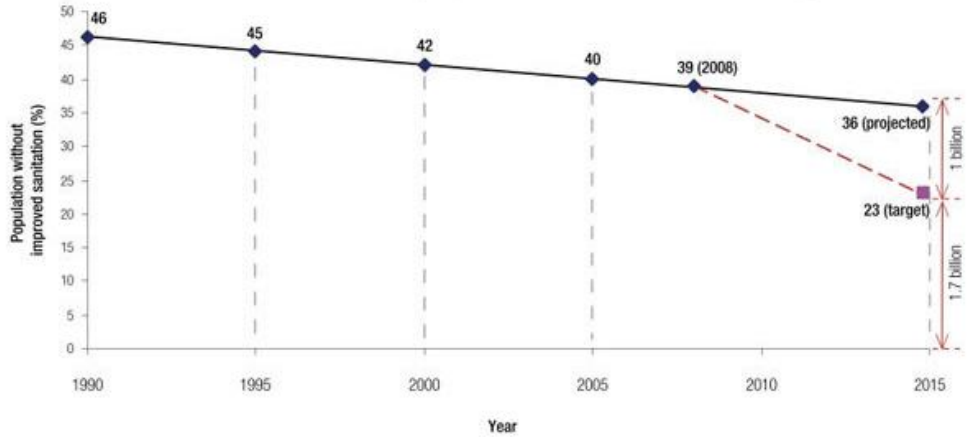
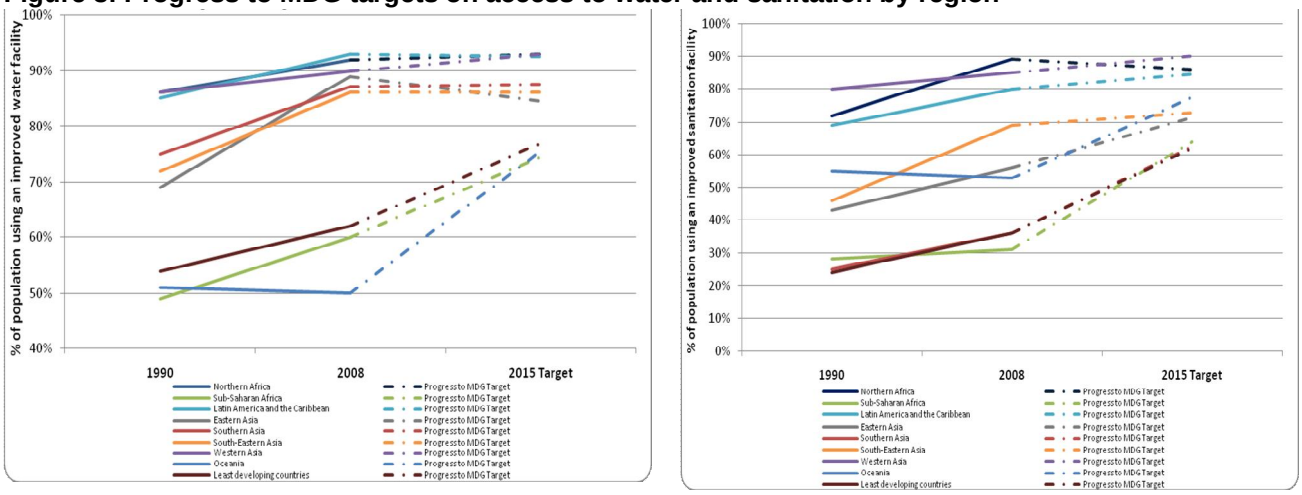


Figure 3: Progress to MDG targets on access to water and sanitation by region



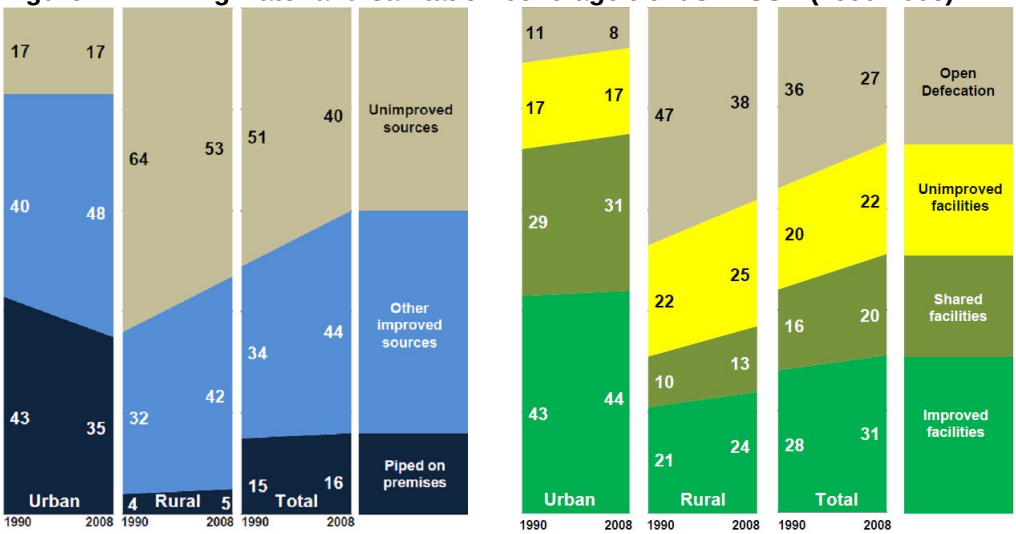
8. Global aggregate figures mask significant disparities between and within regions (Figure 3) and are heavily influenced by progress in large populous countries, particularly China and India[25]. These two countries are home to 47% of the 1.8 billion people who gained access to improved water and 38% of the 1.3 billion people who gained access to improved sanitation between 1990 and 2008. With the notable exception of Sub-Saharan Africa (SSA) (and Oceania) the majority of countries are now on track to meet the MDG water target. By contrast large numbers of developing countries remain off-track to meet the MDG sanitation target, particularly in SSA and South Asia. **The result has been a growing concentration of people living without access in two regions, with 37% of those without access to improved water located in SSA and 72% of those without access to improved sanitation located in South Asia.** The JMP data also reveals

[24] WHO/UNICEF (2010) Progress on Sanitation and Drinking Water (1990-2008).

[25] These two countries are home to 47% of the 1.8 billion people who gained access to improved water and 38% of the 1.3 billion people who gained access to improved sanitation between 1990 and 2008.

significant disparities in access between urban and rural areas with the former enjoying higher levels of access in all regions of the world. **84% of people without access to improved water and seven out of 10 people without access to improved sanitation live in rural areas**. Rural-urban disparities are particularly marked in SSA (Figure 4). At the same time, despite being better served, many urban areas are struggling to keep up with population growth associated with rapid urbanisation. For example, the proportion of the urban population in Africa with piped water fell from 43% in 1990 to 35% in 2008.

Figure 4: Drinking water and sanitation coverage trends in SSA (1990-2008)



Status and trends in WASH sector finance

9. Historically the vast majority of WASH sector funding has come from public sources. This reflects local natural monopolies and the complex range of externalities that limit market provision[26]. OECD estimates that around 90% of the world's piped water and sewerage networks are currently operated by publicly owned bodies[27]. Camdessus' 2003 report Financing Water for All estimated the following breakdown of sources of investment globally: domestic public sector 65-70%, domestic private sector 5%, international donors 10-15% and international private companies 10-15%. However the majority of private investment to-date has been in middle income and industrialised countries and the upsurge in investment in developing countries hoped for in the 1990s has not materialised[28]. The focus has now shifted to identifying the conditions under which WASH services can be provided safely, efficiently, affordably and sustainably, irrespective of whether ownership is public or private (Box 2).

Box 2: Tariffs, taxes or transfers?[29]

Sustainable financing of WASH services implies finding the right mix between different sources of revenue, the so-called '3Ts': tariffs, taxes and transfers (primarily ODA), to cover the costs of meeting the WASH MDGs. A series of global studies of sector financing by OECD show that 'sustainable cost recovery' is a more realistic and practical policy principle than 'full cost recovery' based on tariffs alone. Even developed countries that have already achieved universal access require significant additional investment to rehabilitate existing infrastructure and address wider environmental and health concerns. Historically public budgets, based on taxes, have played a major role in financing initial investment in infrastructure development in virtually all developed countries and are likely to continue to do so in less developed countries. ODA (transfers) are also likely to play an important role

[26] WHO estimates that each $1 invested in water supply and sanitation generates $4-12 in health benefits alone. While this is a substantial return to society as a whole it does not accrue directly to investors.
[27] OECD (2009) Managing Water for All
[28] See Marin, P (2009) Public Private Partnerships for Urban Water Utilities: a review of developing country experiences. Public Private Infrastructure Advisory Facility. The World Bank.
[29] Source: OECD (2009) Managing Water for All.

in enabling governments in less developed countries to cover the high, upfront costs associated with extending new water supply and sanitation infrastructure to unserved populations. Every country must find its own balance among these three basic sources of finance but the Camdessus Panel identified three main characteristics of 'sustainable cost recovery':

1. an appropriate mix of the 3Ts to finance recurrent and capital costs, and to leverage other forms of finance
2. predictability of public subsidies to facilitate investment (planning)
3. tariff policies that are affordable to all, including the poorest, while ensuring the financial sustainability of service providers

The 3Ts need to be distinguished from other forms of finance such as loans, bonds or equity which need to be repaid or receive a return. Such instruments have an important role to play in helping to bridge the financing gap, whereas the 3Ts provide the future cash flows that ultimately close it.

10. Estimates of the costs of meeting the WASH MDGs vary by but **WHO estimate a total global annual spending requirement of around $72 billion ($18bn on new infrastructure and $54bn on maintaining existing services)**. There is no comprehensive source of data on existing levels of investment from different sources. The Global Analysis and Assessment of Sanitation and Drinking Water (GLAAS) initiative aims to aggregate data on sector financing but reports significant difficulties monitoring domestic central and local government budget allocations, household and private sector spending and non-DAC donor aid flows[30].

11. Data on developing country government investment is not readily available but a recent report by **the Africa Infrastructure Country Diagnostic (AICD) estimates that domestic governments account for over half of total annual spending on WASH infrastructure in SSA** ($4.1bn out of a total of $7.6bn, see Table 2). Disaggregating spending on water and sanitation is difficult but the available data suggests that the majority of current spending goes towards water supplies rather than sanitation. This was confirmed during the AfricaSan3 conference in 2011 which reported that only one country in SSA had met the target of allocating 0.5% to sanitation agreed at eThekwini in 2002. The AICD estimates that African government investment in WASH needs to increase from the current average of 1-2% of GDP to an average of 3.5% GDP in order to meet the MDGs. It notes that while external donors may be willing to contributing towards the costs of capital investment, the bill for maintenance of existing infrastructure alone amounts to as much as 2% GDP in low income countries.

Table 2: Existing Financial Flows to Water Supply and Sanitation ($bn pa)[31]

	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: Briceño-Garmendia, Smits, and Foster 2008.
Note: ODA = official development assistance; OECD = Organisation for Economic Co-operation and Development; O&M = operation and maintenance; PPI = private participation in infrastructure.

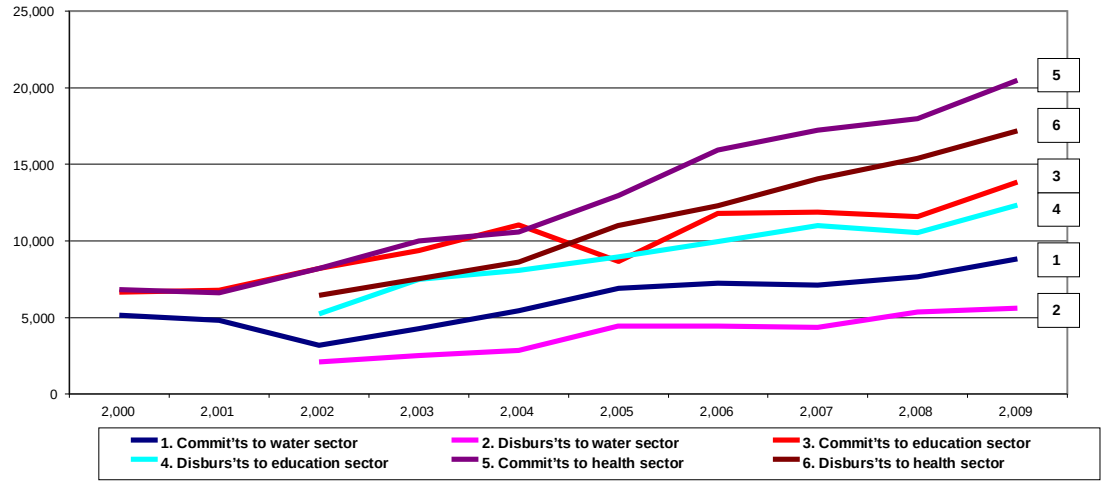
12. **User contributions towards the costs of new connections and the costs of operating and maintaining services vary widely across countries but are substantial**. For water supplies rural populations are typically expected to contribute 10-

[30] GLAAS (2010)
[31] AICD (2011)

20% towards the initial cost of infrastructure development and up to 100% of operation and maintenance costs. Rural households are also expected to cover the majority of costs associated with developing sanitation facilities although government may subsidise certain components (e.g. concrete slabs for pit latrines) in order to incentivise household investment. Urban populations covered by networked water supply and sewerage systems typically incur a one off connection fee followed by a regular tariff payment. The need to increase cost recovery in order to improve the sustainability of services and the financial viability of urban utilities is widely recognised but efforts to reform tariffs tend to be highly politicised. Subsidies remain important in order to extend services to those currently unserved and to provide services to the poor. However existing subsidies are often poorly targeted and tend to be captured by the non-poor (e.g. urban sewerage).

13. **Achieving the WASH MDG targets in South Asia and Sub-Saharan Africa will require significantly increased in financing**. For example, AICD estimate that the $7.6bn current total annual spending on WASH infrastructure is less than one third of the $22.5bn required to meet the MDGs leaving an annual funding gap of $15bn. While there is potential to leverage increased spending by government and households, and to improve efficiency of existing spending, external donors have an important role to play in helping to close this funding gap, particularly in low income countries.

Figure 5 : Trends in ODA commitments and disbursements (2008 constant $US)

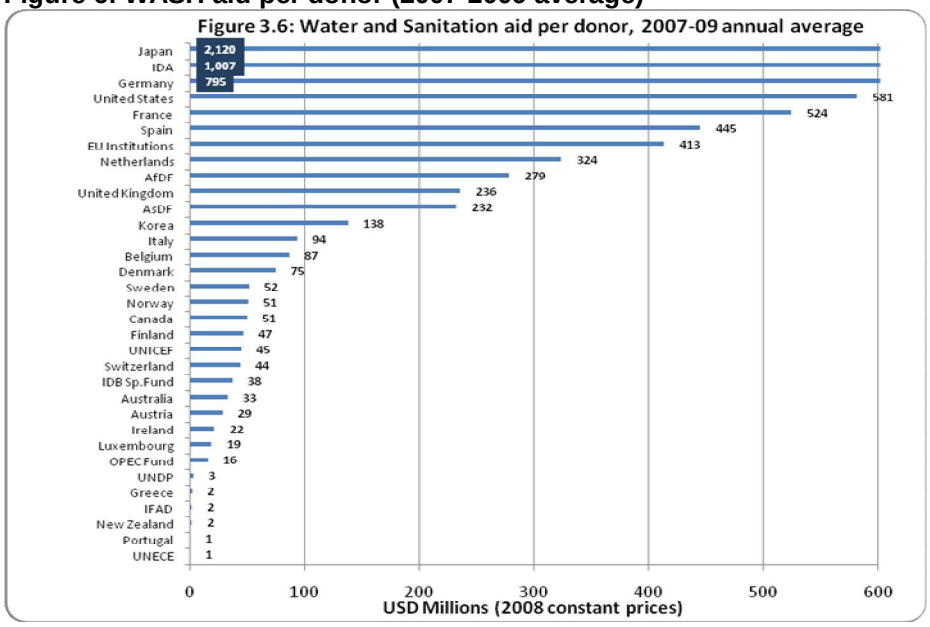


14. **Analysis of OECD data shows that aid, as measured by commitments, to WASH has grown steadily over the past 30 years to around $8.8bn in 2009[32]. However the share of aid going to WASH has contracted from 8% in the mid 1990s to around 5.5% today.** Furthermore investment in WASH has not kept pace with increases in other basic services such as education and health sectors (Figure 4). The 2010 GLAAS analysis of sectoral allocations finds that existing aid allocations are skewed towards water rather than sanitation, towards large systems rather than basic systems, and towards capital investment over rehabilitation and maintenance. It further suggests that aid to WASH aid is not well targeted. Between 2006 and 2008 just 42% of aid allocated to least developed and low income countries. Furthermore the correlation between WASH aid per capita and levels of WASH access in recipient countries is weak. While it remains difficult to disaggregate spending on water and sanitation from the OECD DAC CRS codes GLAAS estimates that 63% of WASH aid is allocated to water and just 37% to

[32] To put this figure in context Ofwat estimate that nearly $8bn has been invested each year over the past 20 years in order to maintain and enhance existing water and sanitation services in England and Wales alone – OfWat (2011) Financing the asset base. Discussion Paper.

sanitation[33]. Figure 6 shows the major bilateral and multi-lateral donors active in the WASH sector.

Figure 6: WASH aid per donor (2007-2009 average)[34]

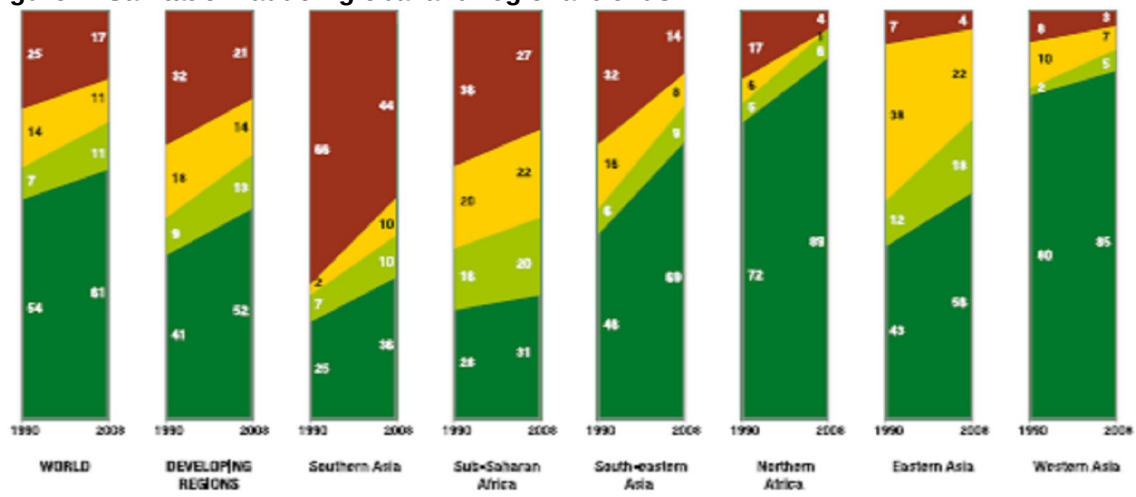


Key challenges facing the sector

15. While global levels of access to water have increased steadily, mainly due to progress in China and India, progress on **sanitation has fallen far behind and there are now more people without access to improved sanitation than there were in 1990.** Sub-Saharan Africa and South Asia have the lowest levels of coverage at 31% and 36% respectively with significantly slower progress in the former (Figure 7). Over a billion people in the world still practice open defecation. 64% of these live in South Asia and over 80% live in just 10 countries worldwide. Political economy analysis suggests that the lack of a clear institutional home is an important factor behind the continued neglect of sanitation (and hygiene) by governments and donors. In recent years there has been a concerted effort to reverse this neglect. The regional sanitation conferences, particularly AfricaSans and SACOSANs, the 2008 International Year of Sanitation and recent establishment of the Sanitation and Water for All partnership have raised high level political awareness within the international system but have yet to translate into significant increases in finance.

[33] Disaggregating spending on sanitation and hygiene is even more difficult
[34] Source: OECD-CRS online (2009 figures)

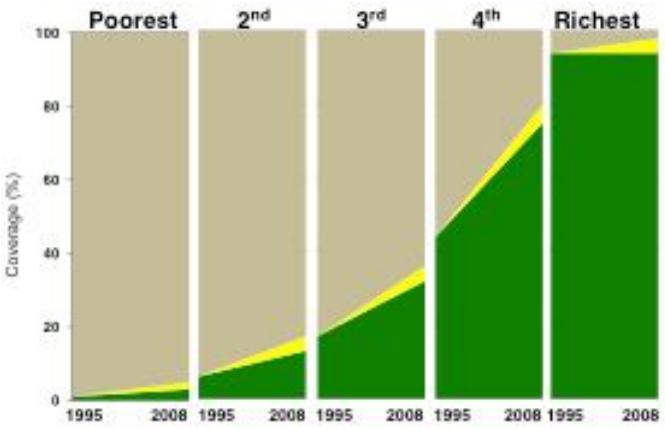
Figure 7: Sanitation ladder: global and regional trends



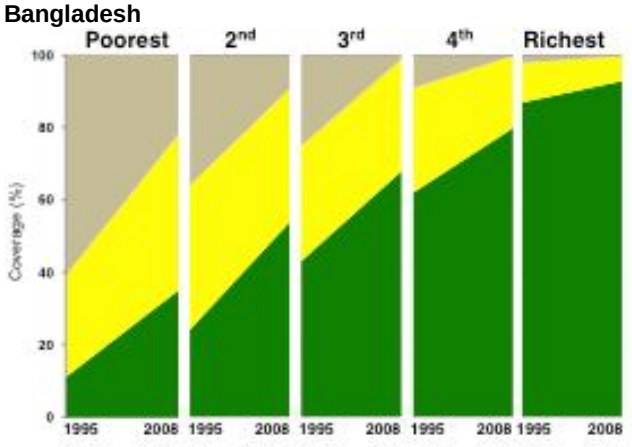
16. While the JMP highlighted disparities in levels of access to WASH between regions and countries, recent further work by UNICEF[35] using Demographic and Health Surveys (DHS) and Multi-Indicator Cluster Survey (MICS) data has drawn attention to differential rates of progress across wealth groups within countries. Analysis of trends in access to WASH by wealth quintile shows that in SSA the richest 20% is almost five times more likely to have access to improved sanitation than the poorest. The poorest quintile are also eighteen times more likely to practice open defecation. Whilst significant gains have been made in India with 166 million people gaining access to improved sanitation between 1995 and 2008, only 3% of this increase was among the poorest 20% and almost half of this increase was among the richest. By contrast in Bangladesh, the poorest 20% captured 16% of the gains made and the richest captured 23% (Figure 8). **Ensuring that progress remains equitable remains a major challenge for the sector and further work is required in order to understand the causes and impacts.**

Figure 8: Access to sanitation in India by wealth quintile

India



Bangladesh



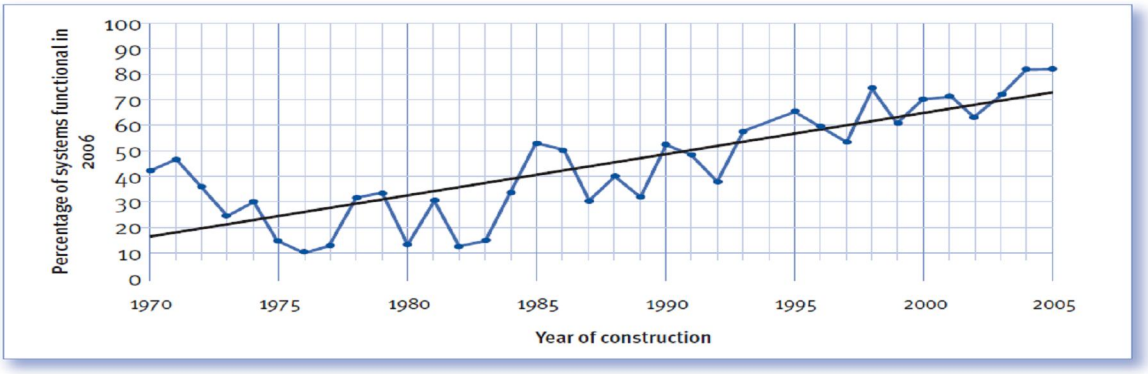
Source: WHO/UNICEF JMP, 2011

17. **Alongside increasing access to services, improving sustainability is increasingly seen as a key element of achieving progress in the sector.** Newly delivered water and sanitation services often perform effectively for a period, and then either fall into disrepair or otherwise fail to provide continuing benefits to their users. Figure 9 shows time-series data of rural water supply functionality from six districts in Tanzania. Reliable data of is lacking but one study estimates that up to a third of handpumps in Africa may

[35] UNICEF (2011) Narrowing the Gap

be non-functional[36] and Government of India data reveals that 'slippage' may be as high as 60% in some states. Finding sustainable sanitation solutions is equally important. Pit latrines will eventually fill up and must be emptied or replaced (pit lifetime can vary from 3 to 20 years) and developing solutions that are safe and affordable to poor households is currently a major focus of innovation. Ensuring sustainability is crucial to secure hard won public health benefits and ensure that people do not revert to unimproved facilities, and has significant implications not only for design and delivery but also investment needs over time[37].

Figure 9: Functionality of rural water supply schemes by age, Tanzania[38]



18. **Rapid urbanisation is another key challenge facing efforts to extend and sustain access to improved WASH services in developing countries.** Between 2009 and 2050 the world population is expected to increase by 2.3 billion to 9.1 billion, while the population living in urban areas is projected to increase by 2.9 billion to 6.3 billion.[39] Most of the population growth expected in urban areas will be concentrated in less developed regions with increases of 1.7 billion in Asia and 0.8 billion in Africa. While megacities (>10m) such as Lagos, Dhaka, Karchi, Delhi, Calcutta, Bombay and Manila are expected to continue to grow **very** fast, and major cities (>5m) elsewhere will continue to grow fast, smaller urban centres (<0.5m) tend to attract less attention but these are expected to account for 45% of the expected increase in world urban population. Meanwhile the proportion of urban poor will increase faster than the urban population growth and that levels of urban poverty will rise from the current 30% to around 45-50% of the total living in cities by 2020[40]. These demographic shifts present a highly complex set of challenges.

19. The Global Urban Observatory notes that 43% of the urban population in developing regions live in 'slums' as compared with 6% of developed regions. Of these 63% live in Asia (excluding China) and the Pacific and 21% live in Africa. UN Habitat define a slum household very broadly as 'a group of individuals living under the same roof lacking one or more of the following conditions: access to improved water; access to improved sanitation; sufficient living area; not overcrowded, structural quality/durability of dwellings and security of tenure'. But for the purpose of providing water and sanitation services it is useful to further distinguish between the following living conditions[41]. While these each present a different set of challenges **it should be noted that the first category (i.e. super slums) is the only one requiring an exceptional response in terms of service delivery and that this comprises just one fifth of slum households**.

[36] Reed and Harvey (2004)
[37] Recent research by WASHCost (2010) suggests the need for a new approach to sector investment planning and asset management which takes account of the full life-cycle costs of providing WASH services.
[38] WaterAid (2011) Sustainability Framework
[39] UN-ESA (2010) World Urbanisation Prospects.
[40] UN-Habitat (2003) Slums of the World, The Global Urban Observatory, Nairobi.
[41] Franceys and Norman (2011)

- Very high density inner city informal/squatter settlements/slums (e.g. Kibera, Mathare valley-Nairobi, F Carlos-Manilla, K60-Johannesburg, Chamanculo-Maputo)
- Very high density inner city 'organised'/compound settlements (e.g. Nima-Accra, Mukuru-Nairobi, Diepsloot-Johannesburg, Maxaquene-Maputo, George-Lusaka)
- High household occupancy multi-storey buildings/tenements/'vertical slums' (e.g. Phnom Penh)
- Low income 'organised' developing suburbs – high density (e.g. Kayole-Nairobi)
- Low income 'organised' developing suburbs – medium/low density (e.g. Babylon-Windhoek)
- Absorbed low income 'villages' (e.g. Teshie-Accra, Kotei-Kumasi)

20. **Water and sanitation service providers used to a 'one-size fits all' mechanistic approach require considerable support to target ('differentiate') their services to people with such differing housing and income conditions**. It is estimated that conventional pipe networks currently serve around 40% of the urban poor. Low technical and managerial capacity of urban utilities in developing countries often undermines their ability to extend services to the unserved urban poor who are then forced to seek alternative arrangements which are typically lower quality and more costly. However where utilities succeed in finding innovative ways to extend services to the poor this can result in significant economies of scale which in turn improves financial viability. Experience suggests that a holistic 'city-wide' approach that addresses the enabling environment while building the capacity of service providers is likely to be a more sustainable solution for the urban poor than ad hoc interventions designed to temporarily plug the gaps created by service provider failures.

21. Climate change threatens the sustainability of freshwater resources in some parts of the world, and is thus becoming an increasingly important driver of water insecurity. At the same time, **climate change poses a threat to water and sanitation services as availability of water changes, and the risks of damage to sanitation and water supplies and contamination of water supplies from extreme events increase**. Ensuring better joined-up Water Resources Management and WASH policy and practice is important in areas where climate changes pose particular challenges. Early work commissioned by DFID has identified particular region of concern in the short-term (by 2030), including southern and Northern Africa and north-eastern South America, which are all likely to be more prone to drought and will face challenges in meeting higher demands because of water supply higher service levels[42]. Large parts of south and east Asia are likely to face increased risks of flooding and have increasing challenges to maintaining safe supplies.

22. **Providing access to WASH services is likely to be an important element of efforts to reduce vulnerability to climate change.** Unimproved water sources are more vulnerable to climate change because they are more reliant upon rainfall and more exposed to climate variability, but this may require shifts in both technology and management. For example, some technologies like hand-dug wells are highly vulnerable to contamination as a result of flooding and to decreases in rainfall, likewise community-management models will be increasingly challenged by uncertain future precipitation. In addition, lack of access to improved WASH services has both health and non health impacts that increase overall vulnerability to climate change impacts[43]. Finally, climatic change may impact on WASH infrastructure. Floods can have catastrophic consequences for basic water infrastructure, which may take years to repair. Where flooding of sanitation facilities occurs, there may not only be a break in services, but the flooding may distribute human excreta and its attendant health risks across entire

[42] WHO (2010) *Vision 2030: The resilience of water supply and sanitation in the face of climate change*
[43] See Annex 2: Literature Review on Water, Sanitation and Hygiene

neighbourhoods and communities. Going forward, it will be critical to design WASH infrastructure to be resilient to future climatic changes.

Chapter 2. Evidence of impacts

23. This section summarises the findings from an in-depth sector synthesis bringing together a broad range of the best available evidence of the health and non-health impacts of WASH; different delivery options; cost effectiveness; and value for money (henceforth labelled 'Literature Review'[44]). The Literature Review also considers gaps in the evidence as well as identifying areas where evidence is lacking altogether. The review finds that there is strong evidence that improving WASH brings a multitude of health benefits for poor and vulnerable people, and medium evidence that improving WASH brings broad-ranging non-health benefits, many of which are particularly relevant to women and girls. The evidence in the review suggests that WASH can no longer be thought of as a straightforward health intervention, but must play its part on many fronts: as an integral part of the preventive health care package; supporting nutrition; enhancing livelihoods; promoting gender equity; and making health centres and schools safer places for all but women and girls in particular. The evidence in the review suggests that the time for discrete 'stand-alone' WASH is over.

24. The review finds that there has been little historical investment in rigorous research on both health and non-health benefits, as well as on delivery models for changing hygiene and sanitation behaviours at scale. This is partly explained by the specific challenges relating to gathering and evaluating evidence on WASH. WASH brings together multiple interventions – which can be delivered separately or together - addressing a wide range of outcomes. As a result there are practical challenges relating to conducting blinded studies with regards to sanitation, as well as to randomising the intervention to individual households and communities. In addition, the range and depth of benefits and the complex causal pathways of related diseases mean that such methods may lack sufficient scientific rigour and deliver unacceptable levels of variation.

25. One of the most important contributions of the Literature Review is that it has made an assessment of the areas in which evidence is lacking but could be developed. It concluded that, whilst there was "strong evidence" relating to the impact of WASH on health, the WASH sector needs more rigorous evidence on: (i) quantifying the health and non-health impact of WASH programming; (ii) more systematic analysis evaluating the effectiveness of different approaches that deliver results at scale, and; (iii) a better understanding of unit costs and cost drivers in different contexts. Nevertheless, progress is being made and existing evidence provides a sound basis for intervention. The Literature Review will support the development of future DFID-funded WASH research work streams.

Evidence on impact

26. Several systematic reviews have assessed the impact on health of a range of WASH interventions. The studies reviewed are classified in different ways and include a range of outcome indicators, but the most common of these is diarrhoeal disease morbidity. However, the impacts associated with WASH extend beyond health, although in general the evidence is less well developed. The key points from a review of the evidence on both the health and non-health impacts are given below:

Health Impacts

[44] See Annex 2: DFID Literature Review on Water, Sanitation and Hygiene, prepared by the SHARE research consortium, September 2011.

27. **WHO – based on strong evidence[45] – estimates that approximately 2.4 million deaths could be prevented annually with safe WASH practised by all, and WASH interventions have the potential to reduce the global disease burden (in DALYs) by 9.1%.** Improving WASH can reduce diarrhoea diseases which are now considered to be the leading cause of child deaths in Africa and the second leading cause of child deaths globally. There is strong evidence that inadequate WASH contributes substantially to this mortality burden as can be seen from the table below. There is also strong evidence that collective and individual WASH interventions can reduce the risk of diarrhoeal disease on a spectrum ranging from 23% (water quality improvements only) to 57% (where water quality is combined with improved sanitation and hygiene. Of particular importance is the emerging evidence[46] that diarrhoea (as a consequence of inadequate WASH) contributes to under-nutrition. Trials are currently underway to test a plausible hypothesis that inadequate WASH is a contributing factor in cases of tropical enteropathy[47]. There is limited evidence (i.e. a small number of studies as this is a new area of study) that tropical enteropathy contributes to undernutrition.

Table 3: Studies demonstrating diarrhoeal disease risk reduction

Study	Esrey *et al.* 1985	Esrey *et al.* 1991		Curtis & Cairncross 2003	Fewtrell *et al.* 2005a [1]	Waddington *et al.* 2009	Cairncross *et al.* 2010a	
Interventions	**Risk reduction (%)**	**Risk reduction (%)**	**Risk reduction (%)**	**Risk reduction (%)**	**Risk reduction (%)**	**Risk reduction (%)**	**Risk reduction (%)**	**Mean**
	Median	**Median**	**Median**	**Pooled**	**Pooled**	**Pooled**	**Pooled**	
Water quality	16	15	30		28	31	17	23
Water quantity	25	20						
Water quality & quantity	37	17						
Sanitation	22	36	33		44	38	36	35
Hygiene education				42-47	33			
Handwashing					25	37	48	37
Multiple interventions					31	2		
Water supply *pooled*					32			
Water quality & san/hyg						21	57	

28. **Inadequate WASH also contributes to the morbidity and mortality burden from many other diseases** including acute respiratory infections (ARIs); the set of diseases that kill the highest proportion of under-fives worldwide. There is strong evidence that improved hygiene can reduce the risk of acute respiratory infections (pooled estimate of 23% risk reduction); and there is medium evidence that diarrhoea (as a consequence of inadequate WASH) increases susceptibility to acute respiratory infections. Other diseases with a causal link include soil-transmitted intestinal helminth infection (ascaris, trichuris and hookworm), schistosomiasis, Guinea worm, trachoma and certain non-infectious diseases associated with chemical water quality (arsenicosis and fluorosis).
29. **Disaggregation of data by wealth/age quintiles demonstrates that the poor and children under five are hardest hit by the unequal distribution of WASH-associated**

[45] For the purposes of the Literature Review, "strong evidence" is defined as: "several good quality studies that consistently show an effect. For example, randomised trials with a low risk of bias or observational studies showing a large effect size with a low potential for confounding".

[46] Medium evidence is defined as: "studies which show an effect but statistical support is weak due to insufficient study size or studies which show significant effects but there is a risk of bias and confounding".

[47] Humphry, JH (2009) Child undernutrition, tropical enteropathy, toilets and handwashing. Lancet 374 (9694): 1032-5

mortality and morbidity. The disease burden is disproportionately high among the poorest populations and the majority of deaths from diarrhoea occur among children.

Non-health impacts

30. **There is strong evidence that improved WASH is associated with significant, highly valued time savings particularly for women and young girls.** However, much of the available evidence on the effect of WASH on education and gender - although intuitive - is largely anecdotal or circumstantial and statistically the evidence appears weak. For example it is plausible that inadequate WASH inhibits school attendance, especially among girls, but a DFID-funded systematic review of the peer-reviewed literature found that there was no strong evidence either for or against this hypothesis. Current randomised trials in Kenya and India may shed more light on this important issue. Establishing evidence on this and similar gendered impacts will be important going forward.
31. **There is strong evidence that lack of access to water continues to impact women significantly through the burden of water collection**. Household survey data collected from over 40 countries showed that women carry two-thirds of the burden for water collection.
32. **There is medium evidence that women in particular suffer a range of impacts associated with poor sanitation**, including violence and insecurity. More rigorous research is required to understand and quantify the associated risks. Whilst anecdotal evidence suggests that inadequate provision for menstrual hygiene management leads to reproductive tract infections and urinary tract infections, more work needs to be done to build the currently weak evidence base.

Evidence on delivery options

33. **There is limited rigorous evidence regarding the best choice of specific delivery models for WASH,** particularly for delivering effective interventions at scale. The Literature Review has not considered specific approaches or technologies for two main reasons: firstly, there is a lack of systematic data evaluating the effectiveness of specific approaches; secondly, there is great variation in the way in which specific approaches or technologies are implemented across different settings, making comparisons very challenging. This review notes the consistent features of good WASH programmes rather than judging between alternative models. Much of this evidence is medium strength or limited as detailed below:
    - There are so few well documented case studies of WASH programmes at scale that it is difficult to draw an evidence-based conclusion as to the most effective approaches.
    - There is medium evidence that formative or market research is particularly important for interventions that require changes in behaviour (especially handwashing with soap and sanitation). Formative research includes study of the existing market – providers, consumers, prices etc – and of the factors motivating or constraining the consumer, as well as testing of the communication materials to be used.
    - There is medium evidence that careful targeting of subsidies in order to leverage household investment can contribute to an increased likelihood that a toilet is used and maintained.
    - There is a small quantity of medium strength evidence that toilets designed to a target price and for a market niche can be more effective in attracting household investment.
    - There is conflicting evidence as to the effectiveness of shared sanitation facilities although this may be explained by the many models or approaches that this term encompasses. Whilst there is medium evidence that shared facilities managed by communities function well (as opposed to privately managed facilities), there is other medium evidence that usage of shared facilities – whether community or privately managed – was significantly lower among women than men.

- There is strong evidence that for urban on-site sanitation systems to be effective they must allow for pit-emptying, or at least replacement of the pit, and the safe disposal of the pit contents where necessary
- There is medium evidence that health outcomes improve (as a consequence of increased use of water) when the water source is closer to the household with the implication that water supply strategies should take account of distance to source and plan and invest accordingly.
- There is limited statistical evidence - and extensive observational evidence - that sustainability is a major challenge for WASH services with facilities falling into disuse or disrepair over time.

Evidence on cost-effectiveness and value for money

34. **There is strong evidence that WASH investments can have significant health, economic and development benefits and that these investments may be at a level that is comparable or favourable to other interventions in terms of cost-effectiveness**. However, the existing evidence is generally inadequate to determine whether WASH investments are significantly more or less cost-effective than other interventions, given uncertainty and the variability in benefits across settings. In addition, the Literature Review suggests that the sector currently lacks the necessary information to maximise the return and value for investments. The key points relating to the economics of WASH from the available evidence are summarised as follows:
    - There is limited systematic data on the costs of providing and sustaining WASH services. Current estimated costs should be viewed with caution as they do not provide breakdowns based on settings or conditions.
    - There is some evidence on the economic benefits of WASH, but authors acknowledge that data are limited in estimating these benefits and rely on significant assumptions in order to generate preliminary estimates.
    - Better evidence on economic benefits would require experimental designs that empirically measure economic gains on the part of communities or individuals receiving water, sanitation or hygiene. There is little existing evidence of this type due to the methodological challenges of conducting this type of trial.
    - Most global cost-effectiveness and cost-benefit analyses focus on diarrhoea as the outcome and therefore do not include potential impacts of other health outcomes, e.g. acute respiratory infections, soil-transmitted helminths, nutrition, adolescent sexual health, maternal mortality and neglected tropical diseases including schistosomiasis and trachoma. They also do not include the mulitple non-health benefits of WASH. This is likely to result in an underestimate of the value for money of WASH interventions. However, it can also result in inconsistent and biased estimates making it difficult to compare the cost-effectiveness of different WASH interventions and to compare WASH interventions to other health and development interventions.
    - One of the most widely cited cost-benefit analyses[48] considers five different investment scenarios in different geographical regions. It finds that the estimated monetary value of all of the scenarios provides excellent value for money in all contexts, with the economic value of returns greatly exceeding costs. These estimates would be greatly improved with improved empirical data regarding the assumptions of economic benefits or from rigorous studies that directly measure economic outcomes.
    - Current estimates of economic and health benefits of WASH interventions do not utilise existing best practices for estimating uncertainty regarding quantitative benefit estimates. Probabilistic simulation methods have been recommended and these

[48] Hutton G, Haller L (2004) Evaluation of the non-health costs and benefits of water and sanitation improvements at the global level. Geneva: WHO

should be used for estimating the impacts of WASH interventions in an objective manner.

- In addition to improving the accuracy of estimates there are several areas in which improved economic evaluation information could *directly* result in improved efficiency of investments and value for money. In particular there is very little evidence to guide decision makers about how to invest efficiently *within* the sector at a given scale (local, national or regional).

New evidence: what we need to know to improve the impact of WASH interventions

35. As with most areas of health and development, there are a number of gaps in our understanding of the magnitude and mechanisms of the impact of WASH interventions. **Achieving a better understanding of these through rigorous research that harnesses a range of research methods and approaches will build stronger policy and programmes.** A small number of enduring research questions were identified. The list is far from exhaustive and each could give rise to a longer list of applied or basic research questions (Box 3).

Box 3: What we need to know to improve the impact of WASH interventions

- The relative effectiveness of different sanitation interventions;
- Environmental transmission of excreta-related infections and the relative role of different pathways;
- Health impacts of poor WASH beyond diarrhoea;
- Non-health impacts associated with poor WASH;
- How vulnerable populations are affected and how they can be reached;
- Achieving behaviour change for hygiene and sanitation at scale;
- Costs and cost effectiveness across different social and physical contexts; and
- Evidence of models that work at scale, particularly for urban sanitation.

Chapter 3. DFID response

Overview of DFID investment in WASH

36. **DFID supports progress towards the MDG targets on water and sanitation through a combination of bilateral aid, contributions to multilateral organisations, and policy and research.** The classification of aid as bilateral or multilateral is based on definitions laid down by the OECD DAC. On the whole bilateral assistance is provided to partner countries while multilateral assistance is provided as core contributions to international organisations. While much of DFID's expenditure is clearly identifiable as bilateral or multilateral in nature there are some anomalies which makes estimating DFID resources to Water, Sanitation and Hygiene (WASH) complex (Box 4). In addition, resources provided to other sectors (health and education for example) also support the achievement of WASH results, but are often not coded as belonging to the sector[49]. WASH can be a relatively high proportion of DFID's expenditure on humanitarian aid.

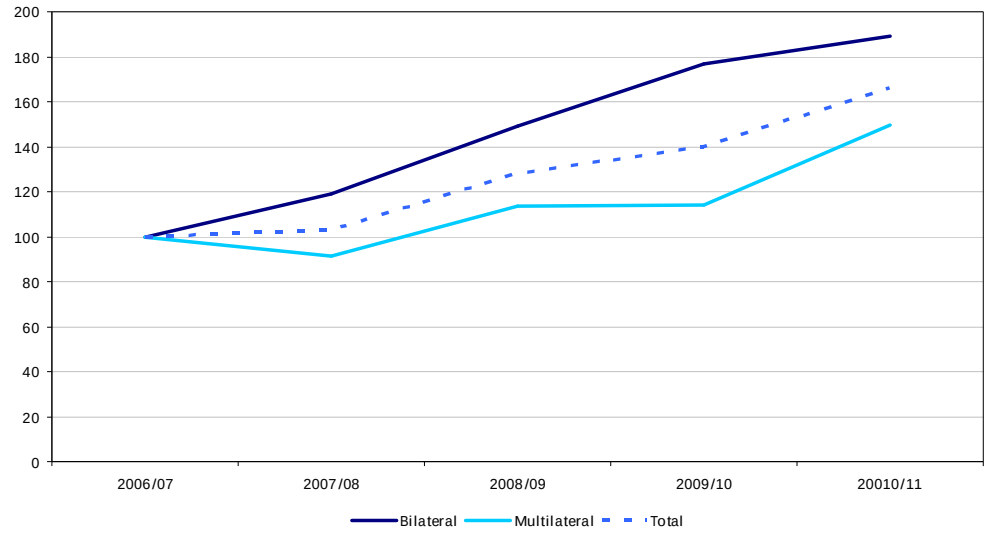
Box 4: A note on terminology used

As noted in Chapter 1, this Review covers spending on water, sanitation and hygiene delivery only: it does not cover DFID's activities on water resources management (WRM). However, separating funding flows to WRM from funding flows to water sanitation and hygiene service delivery (henceforth referred to as WASH) is often complex due to the different approaches to reporting results adopted by different organisations[50]. For the purposes of this review, the terminology used is as follows:

- Where funding includes WRM and WASH we use the term 'water sector'.
- Where funding is for water, sanitation and hygiene service delivery only we use 'WASH sector'.

37. **DFID's overall expenditure to the water sector is estimated to be £245 million in 2010/11**. **This has increased by £97.2 million since 2006/07 - a 66% increase over the 5 year period** (Figure 10 and Table 4)**.** Bilateral aid to the water sector has almost doubled from just over £60 million in 2006/07 to £114 million in 2010/11, an increase of almost £54 million (90%). Estimated imputed multilateral aid to the water sector has increased by £43.5 million to £131 million, a 50% increase over the period. The average bilateral/multilateral split over the period was 47:53 (Figure 10).

Figure 10: DFID aid to the water sector, total, bilateral and multilateral
Rebased, 2006/07 = 100



[49] See for example Box 17 in Chapter 4 on DFID support to WASH in schools through the education sector

[50] Further information on the methodology is provided in Annex 1. The majority of the data used in the portfolio description is available at MoneySite and/or Statistics on International Development 2010. Where additional sources have been used the source has been clearly indicated.

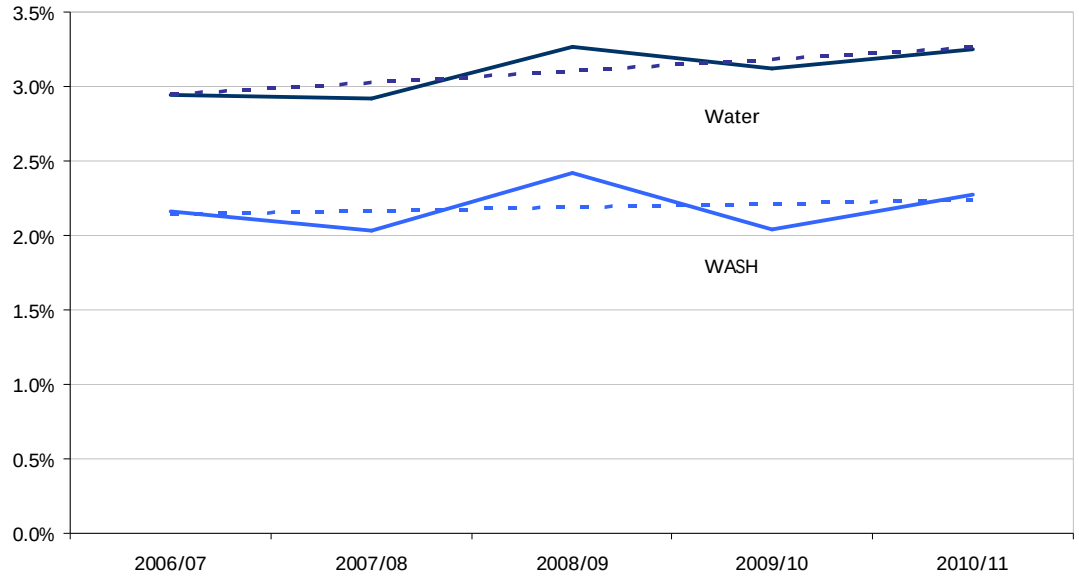
38. There is a similar pattern in DFID's spend on WASH. **In 2010/11 it is estimated that total DFID aid to WASH was £172 million, which increased by 58% (£63 million) since 2006/07.** Bilateral aid has increased by £35 million to £84.5 million (a 70% increase) and multilateral aid has increased by £28 million to £87.2 million (a 48% increase). Over the period the average bilateral/multilateral split for WASH was 50:50 (Table 4). Aid to WASH as a share of total DFID aid has remained fairly static over the period – around 2.2% (

39. Figure 11)[51].

Table 4: DFID expenditure on Water and on WASH *(£ million)*

	2006/07	2007/08	2008/09	2009/10	20010/11
TOTAL WATER AND SANITATION	148.0	151.7	189.5	206.8	245.2
of which:					
Bilateral	60.4	71.7	90.1	106.8	114.1
Multilateral	87.6	80.0	99.5	100.0	131.1
TOTAL WASH	**108.6**	**105.8**	**140.4**	**135.5**	**171.7**
of which:					
Bilateral	**49.6**	**53.0**	**74.1**	**68.8**	**84.5**
Multilateral	**59.0**	**52.7**	**66.3**	**66.7**	**87.2**

Figure 11: Trends in DFID aid to the water sector and to WASH
% of total DFID aid, dotted line is trend

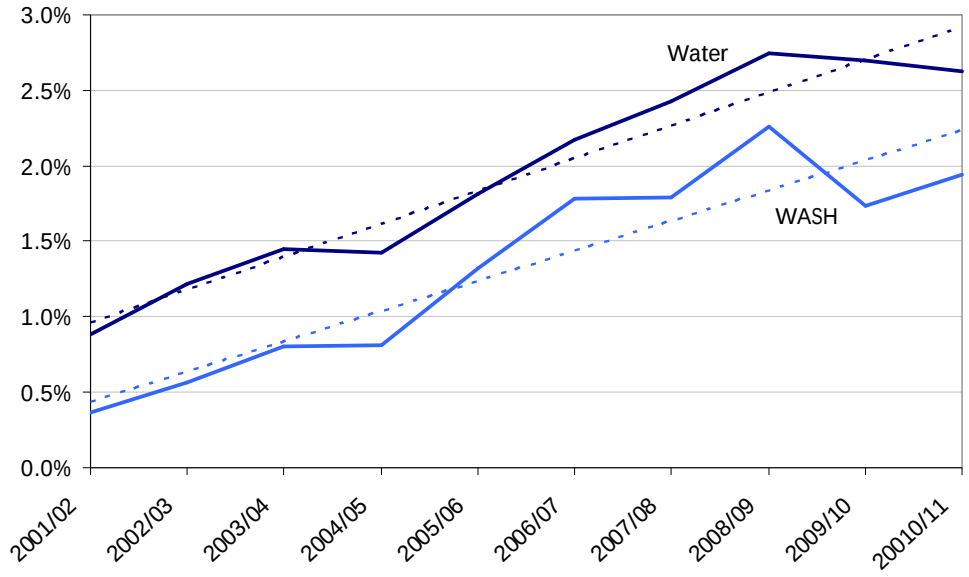


Bilateral expenditure: how much, on what, how and where?

40. **DFID bilateral support to the water sector has increased over the last 10 years** (Figure 12). In 2001/02, the share of DFID bilateral aid to the water sector was less than 1%, but this increased to 2.6% by 2010/11. There is a similar trend in WASH expenditure - in 2001/02 less than 0.5% of total DFID allocable aid supported WASH activities, by 2010/11 this had increased to 1.9% (Figure 12). DFID's bilateral spend continues to increase: spending on WASH over the past 5 years totals £330m and has increased from £49.6m in 2006/07 to £84.5m in 2010/11. The vast majority is channelled through country programmes (88% in 2010/11).

[51] DFID expenditure on the water sector as whole increased during the same period, albeit marginally, from 2.9% to 3.2% of total DFID aid.

Figure 12: Bilateral aid to the water sector and to WASH
% of total DFID aid, dotted line is trend



41. **WASH forms part of one of DFID's smallest portfolios**[52]. While Figure 11 illustrates an increasing share of total DFID bilateral aid being allocated to the water sector, and to the WASH sub-sector, the spend on the water sector as a share of total DFID bilateral aid remains relatively small compared to other sectors (Table 5) and is also small compared to most other donors.

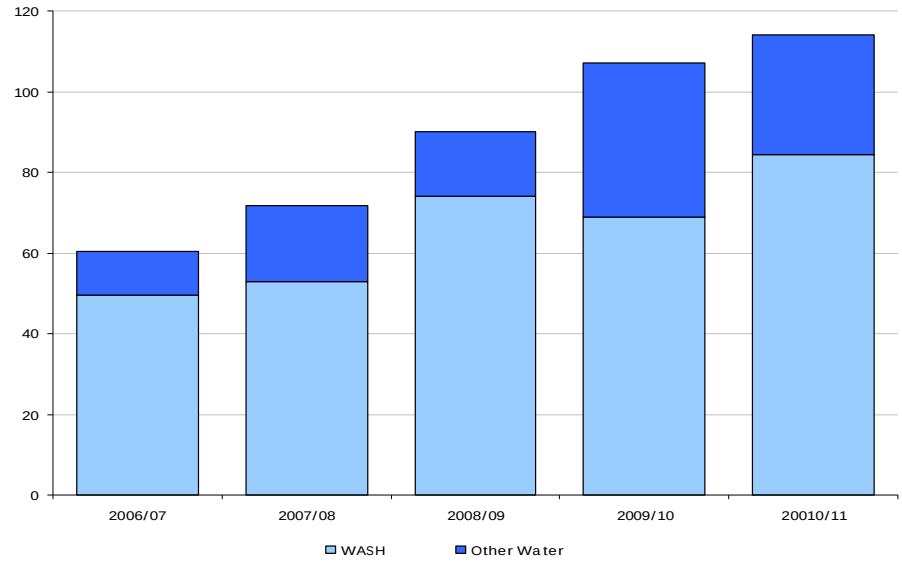
Table 5: Sector distribution of total DFID allocable bilateral aid 2009/10
% of total DFID allocable aid

	2006/07	2007/08	2008/09	2009/10	2010/11
Education	13.8%	12.2%	13.7%	10.0%	12.9%
Health	18.2%	18.7%	20.9%	17.3%	18.3%
Social Services	3.7%	4.6%	5.0%	6.0%	7.2%
Water sector	**2.2%**	**2.4%**	**2.7%**	**2.7%**	**2.6%**
Government and civil society	21.9%	25.9%	24.1%	18.1%	18.0%
Economic	16.0%	16.7%	16.0%	21.9%	17.3%
Environment	0.9%	1.3%	1.8%	2.5%	3.1%
Research	3.3%	3.6%	4.2%	3.7%	3.8%
Humanitarian	11.7%	10.6%	9.7%	11.0%	10.1%
Non-allocable	8.3%	3.9%	1.8%	6.9%	6.7%

42. **Over the last 5 years three quarters of DFID bilateral spend on the water sector has been directed to MDG related WASH activities** (Figure 13). But the share going to non-WASH activities is increasing. Between 2006/07 and 2010/11, bilateral aid to the water sector other than to the WASH sub-sector (non-WASH spend) has almost tripled from £10.8 million to £29.6 million, an increase of £18.8 million. Over the same period, WASH bilateral spend has increase by 70% from £49.6 million to £84.5 million, an increase of £34.9 million.

[52] The share of aid DFID allocates to WASH is also small in comparison with other major donors (see Table 27)

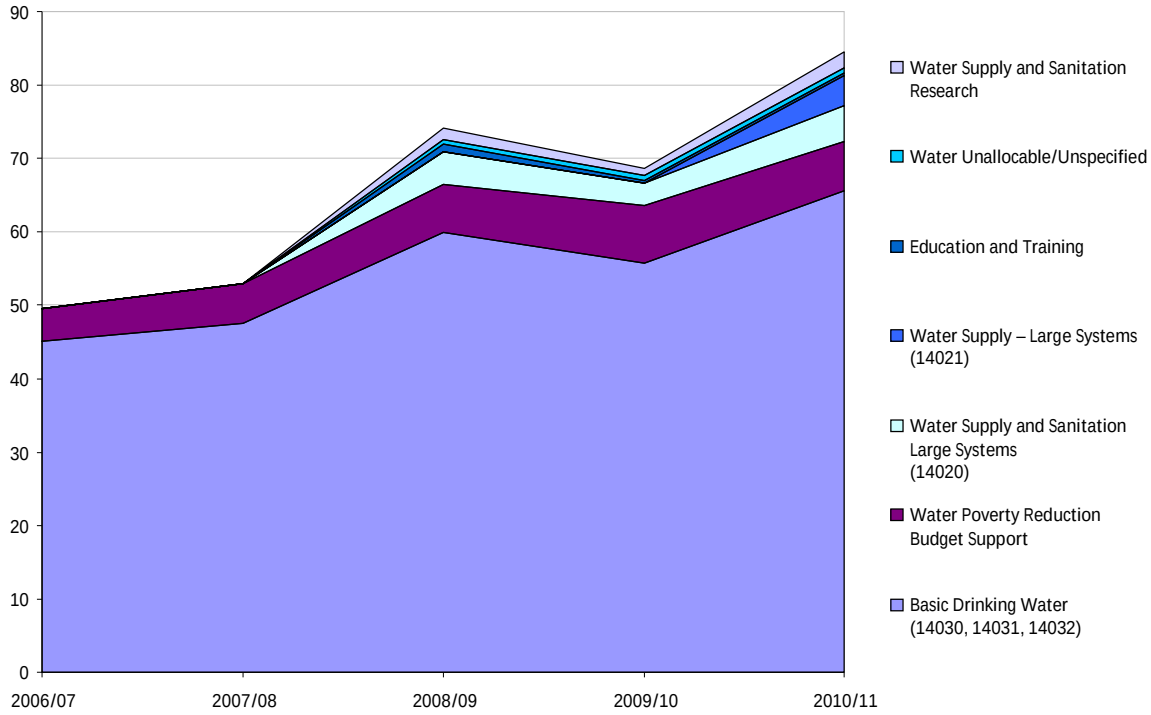
Figure 13: Bilateral WASH and non-WASH spend (*£ million)*



43. **Over the last 5 years the majority of DFID WASH related spend has been directed to 'basic drinking water'** - rural water supply schemes, small distribution systems with shared connections/points of use, urban schemes using hand pumps and local neighbourhood networks, latrines, on-site disposal and alternative sanitation systems, and the promotion of household and community investments in the construction of these facilities). In 2010/11, £63 million was allocated to 'basic drinking water' (input sector code 14030) [53], accounting for 75% of bilateral WASH spend (and 83% over the last 5 years). Over the last 5 years almost £272 million bilateral aid has been provided to support basic drinking water, and this has increased from £45 million in 2006/07 to £63 million in 2010/11. Other significant spend has been budget support to the water sector (estimated to be about 9% of bilateral WASH spend over the period). The apparent increase in expenditure allocated to other WASH related input sector codes from 2009/10 – including research, education and training and large systems – partly reflects efforts to align DFID reporting with internationally agreed input sector codes (Figure 14).

[53] Recent additions to the water input sector codes (14021, 14022, 14031, and 14032) will allow greater accuracy in reporting on what our aid is supporting, but it is too early to see significant amounts of aid being recorded under the new codes.

Figure 14: Bilateral WASH spend by input sector code *(£ million)*



44. **How DFID channels bilateral WASH funds has changed over the last 5 years with an increased share going to multi-laterals**[54]. In 2010/11 bilateral WASH expenditure channelled through multilateral organisations was £45 million, about 6 times the level in 2006/07. In 2006/07, 16% of bilateral WASH spend was "multi-bi" (bilateral funds that country offices channel through multilaterals) yet by 2010/11 this had increased to 53% (Figure 15). The share of bilateral WASH spend channelled through NGOs has fallen from 20% to 6% over the period[55]. The share of bilateral WASH expenditure on technical cooperation (the procurement of goods and services) has reduced from 21% of total bilateral WASH spend in 2006/07 to 11% in 2010/11 (£10.5 million to £9 million over the period). Financial aid to WASH has increased by 20% over the period, from £21 million to £25 million, yet as a share of total bilateral WASH spend it has fallen from 42% to 30% (Figure 16).

[54] As with input sector codes, DFID's classifications of bilateral funding types are consistent with DAC reporting standards. Funding types are essentially aid types and indicate the channel through which aid is delivered and can have an impact on the input sector code that is selected.

[55] The share of funding channelled through NGOs through mechanisms other than bilateral spend (including accountable grants to NGOs, Partnership Programme Arrangements (PPA) Civil Society Challenge Funds etc.) has also fallen over the period, from £10 million to about £5 million.

Figure 15: Bilateral WASH spend by funding channel (*£ million)*

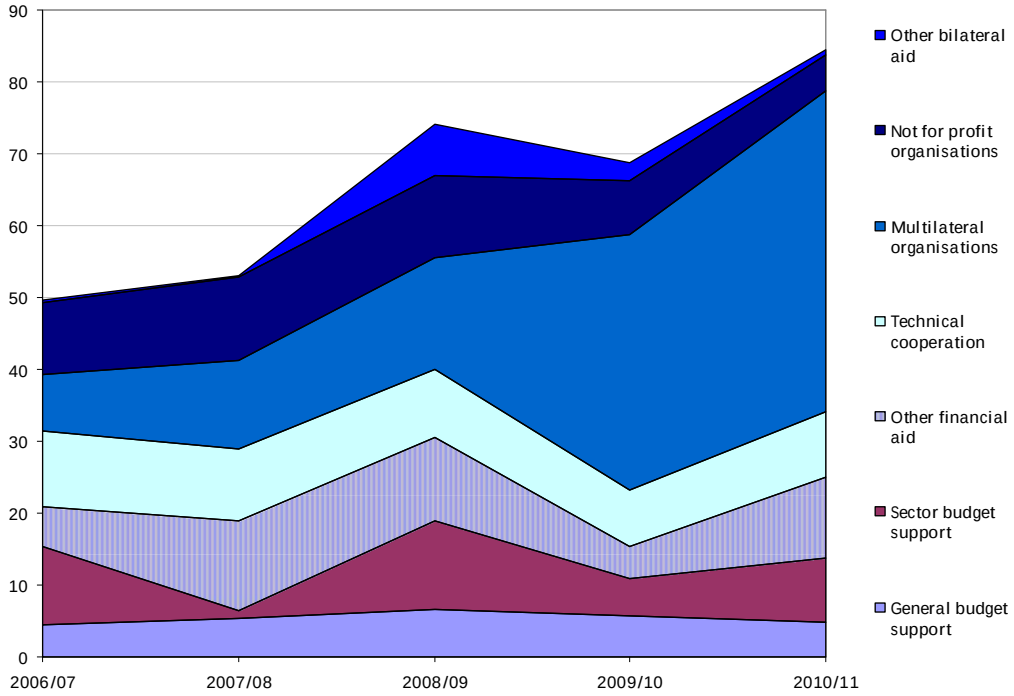
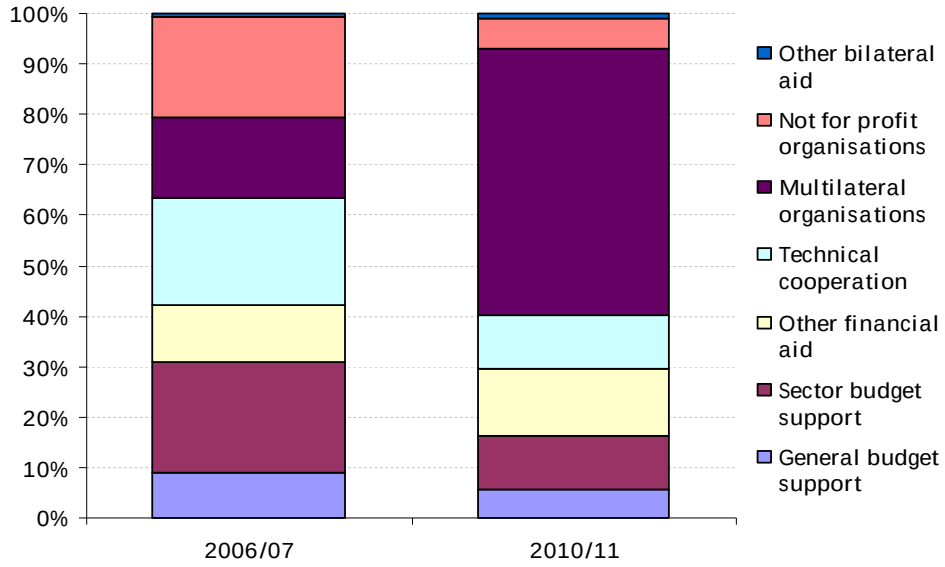


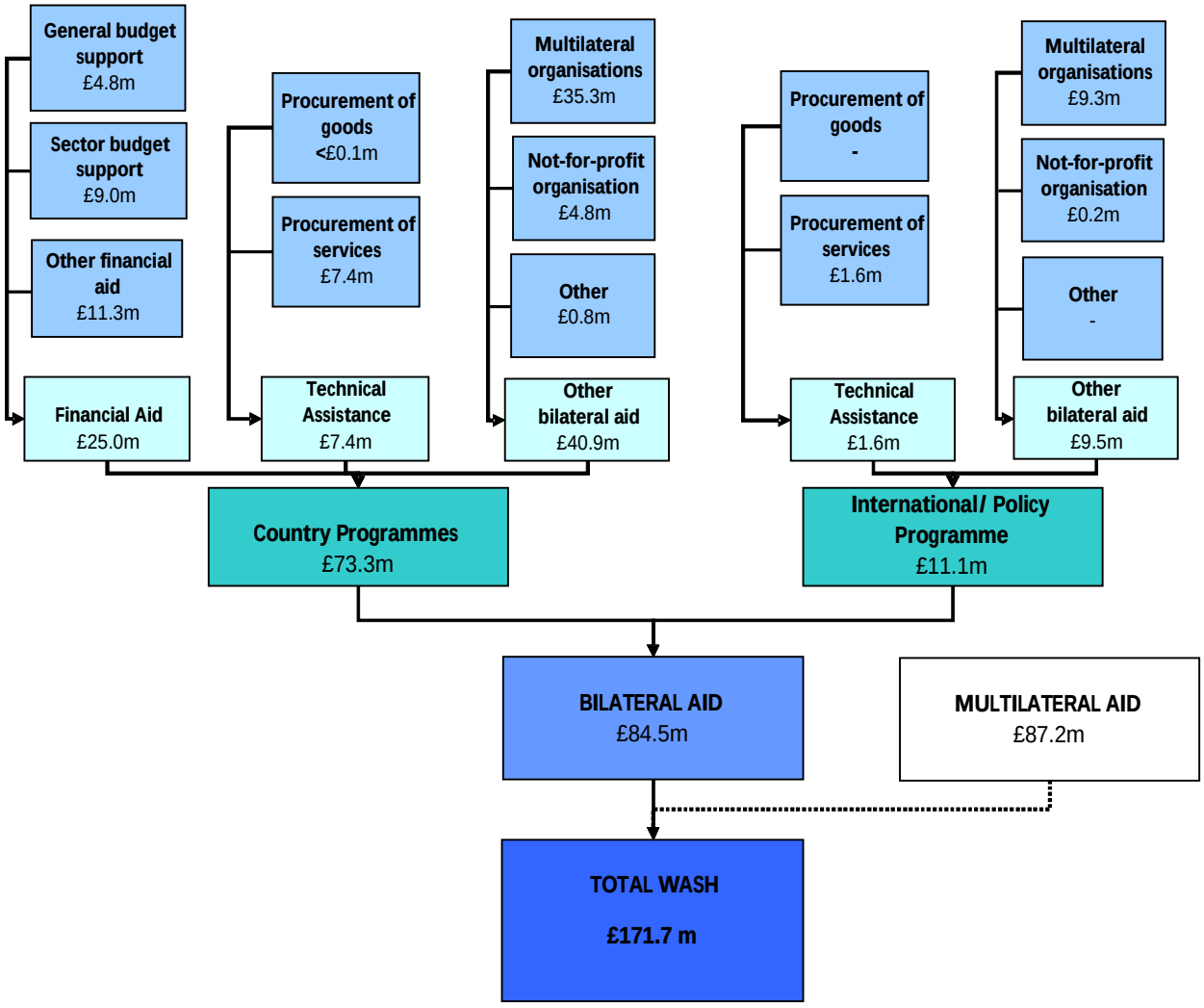
Figure 16: Bilateral WASH spend by funding channel
% of total bilateral WASH



45. **In 2010/11 bilateral spend on WASH was £84.5 million, of which £73.3 million (87%) was though country and regional programmes**. Of this £25.0 million was financial aid (34%) and £40.9 million (53%) was other bilateral aid that included £35.3 million of *multi-bi* spend (48% of total country programme spend on WASH). International and policy programmes[56] accounted for £11.1 million WASH spend in 2010/11 (13% of total bilateral WASH spend). Of this £9.3 million was *multi-bi* spend (84% of total international and policy programmes) and supported the provision of global public goods (Figure 17).

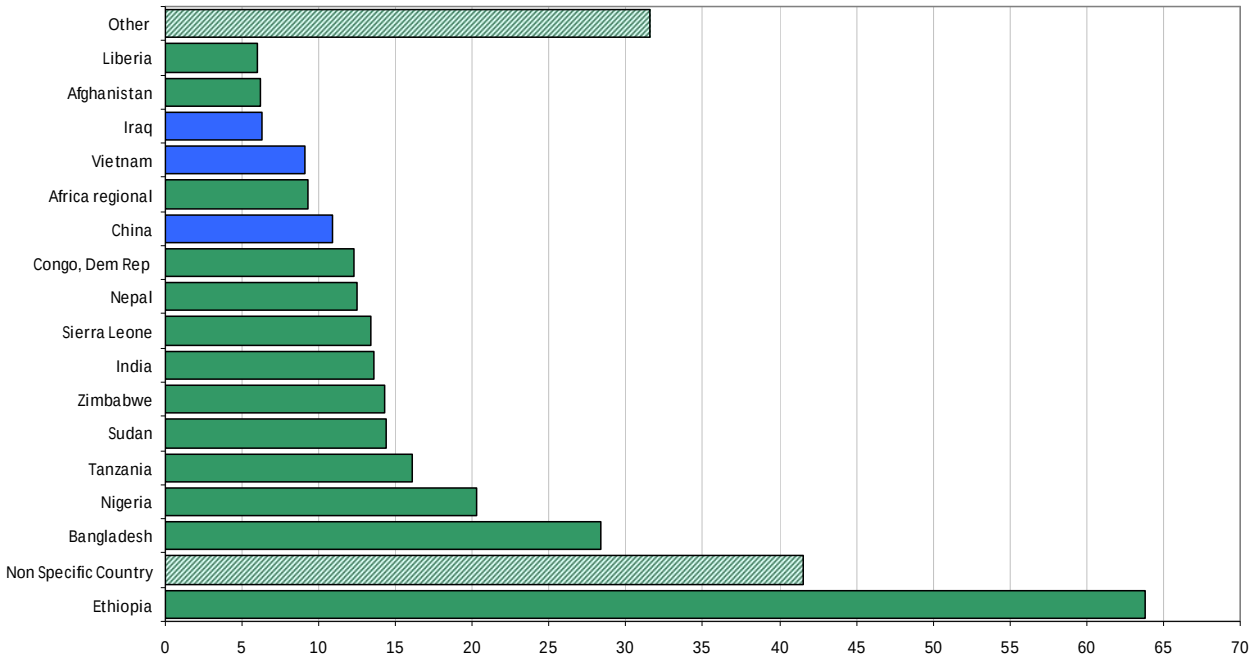
[56] International/ Policy Divisions are DFID divisions which work on policy areas or with international organisations and include: Policy Division; Research and Evidence Division; and International Finance Division.

Figure 17: Bilateral WASH spend by funding channel 2010/11



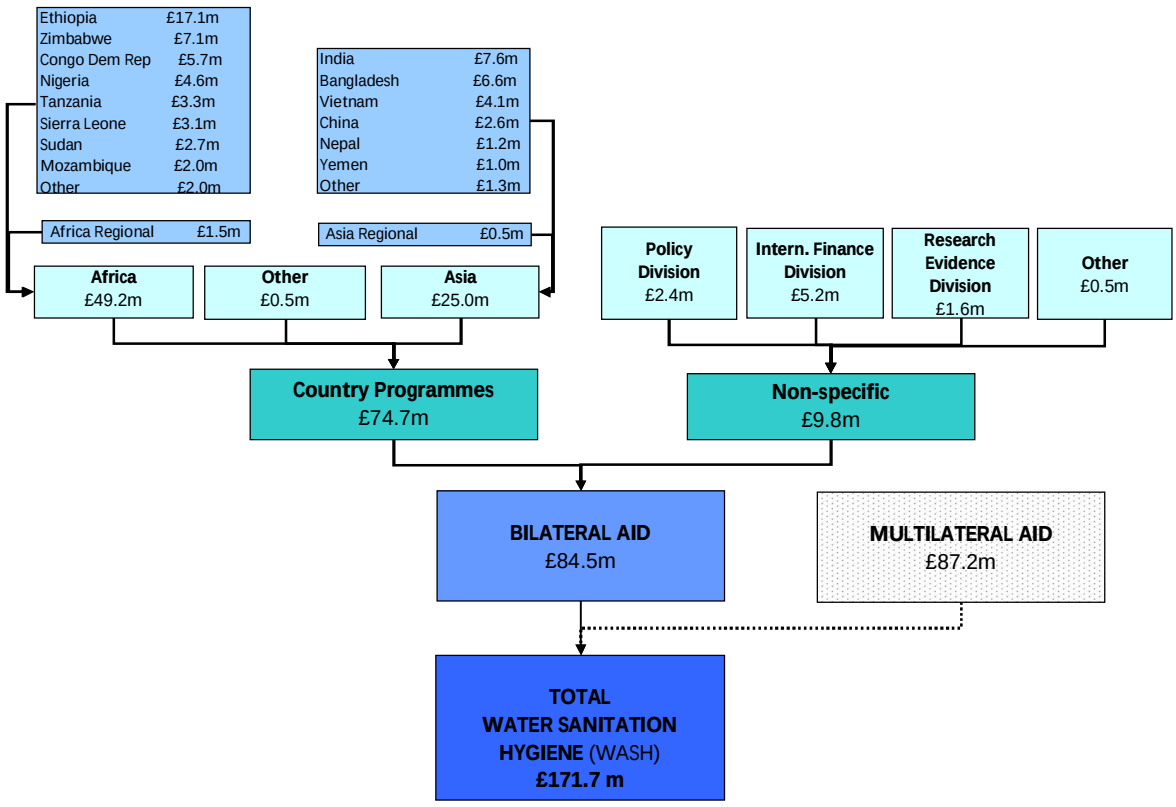
46. **Over the last 5 years almost half of total bilateral aid to WASH has been allocated to six countries:** Ethiopia (£63.8 million, 19% of the 5-year total); Bangladesh (£28.4 million, 9%); Nigeria (£20.3 million, 6%); Tanzania (£16.1 million, 5%); Sudan (£14.4 million, 4%); and Zimbabwe (£14.3 million, 4%). Non-specific programme spend – which includes support to global public goods through research and global partnerships, and where outputs from these programmes have impacts in many countries (including DFID priority countries) - amounted to £41.6 million (14%) (Figure 18). In 2010/11 the largest bilateral WASH programmes were in Ethiopia, India, Zimbabwe, Bangladesh and DRC (Figure 19). Programmes in Africa, including a regional programme, amounted for £49.2 million – 66% of country programme spend on WASH and 58% of total bilateral spend on WASH. Programmes in Asia totalled £25 million and accounted for 33% of country programme spend (30% of total bilateral WASH spend). The total of £4.8 million of General Budget Support that is allocated by recipient countries to WASH represents 1.3% of the £360 million total amount of GBS that DFID provides.

Figure 18: Bilateral aid to WASH, largest spend by country
Total 5-year spend, £ million (DFID priority countries and regions are shown in green)



Other includes: Pakistan, Uganda, Yemen, Rwanda, Malawi, Mozambique, Angola, Montserrat, Cambodia, Ghana, Eritrea, West Bank & Gaza, Asia Regional, Zambia, Kyrgyzstan, Somali Democratic Rep, Nicaragua, Burma, Guyana, St Helena & Dependencies, Kenya, and South Africa.

Figure 19: Bilateral WASH spend by region 2010/11 (*£ million)*



47. **DFID's bilateral aid to WASH is concentrated in Africa and Asia.** The number of countries with WASH spend has remained at 24 over the period (FY 2006/07 – 2010/11), having risen to 33 in 2008/09. There has been a slight shift away from Africa towards Asia (Figure 20) although Africa accounts for a greater share of spending. Over the period, 53% of the support to basic drinking water was allocated to Africa whereas 32% was allocated to Asia. While the number of country programmes in 2010/11 is the same as in 2006/07, the average size of bilateral WASH country programmes has steadily increased from £1.7 million to £3.0 million. In Africa the average country WASH programme increased from £1.8 million in 2006/07 to £3.7 million in 2010/11. There has also been an increase in the average country programme size in Asia - albeit more variable compared to Africa (Figure 21). However the results for each £ spent in Asia are often greater than the results from a £ spent in Africa.

Figure 20: Countries receiving DFID WASH bilateral aid

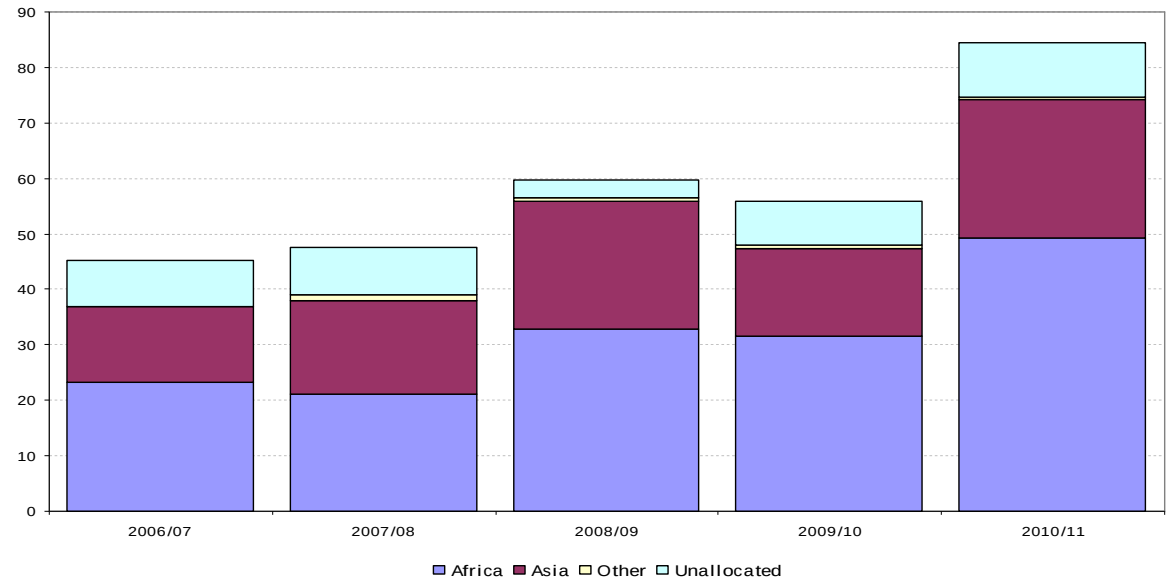
	2006/07	2007/08	2008/09	2009/10	2010/11
Africa	15	14	19	14	13
Asia	8	12	11	12	10
Other	1	1	3	3	1
Total	**24**	**27**	**33**	**29**	**24**

Figure 21: Average size of WASH bilateral aid to country (*£ million)*

	2006/07	2007/08	2008/09	2009/10	2010/11
Africa	1.8	1.8	2.1	2.8	3.7
Asia	1.8	1.4	2.3	1.4	2.5
Other	0.0	0.9	0.2	0.2	0.5
Total	**1.7**	**1.6**	**2.0**	**2.0**	**3.0**

48. **Regionally, DFID support to basic drinking water has largely been provided to Africa** but there has been a marginal increase in support to Asia (figure 20). In 2006/07, £23.3 million supported basic drinking water in Africa (52% of total support to this sector code) and by 2010/11 this had increased to £49.2 million (58%). Over the period, 53% of the support to basic drinking water was allocated to Africa. In 2006/07, £13.5 million supported basic drinking water in Asia and by 2010/11 this had increased to £25.0 million and over the period 32% was allocated to Asia.

Figure 22: Bilateral aid to WASH on basic drinking water by region £ million



49. **DFID is providing more bilateral aid to basic drinking water through multilaterals (multi-bi) and less through NGOs.** Over the period, £97.4 million bilateral aid was spent on basic drinking water through multilateral organisations in-country – 36% of the total provided to basic drinking water. In 2010/11, almost £35 million multi-bi aid was provided, over 4 times the amount provided in 2006/07 (under £8 million). The share of total bilateral aid to basic drinking water provided through multilaterals increased from 17% to 55% over the period. Financial aid has increased marginally from £16.6 million to £18.4 million, with a shift away from supporting basic drinking water through sector budget support (falling by 35% over the period). However, financial aid was still an important funding channel over the period, with around 36 of the total funds channelled this way in 2006/07 and 29% in 2010/11. The support DFID has provided to basic drinking water through non-government organisations has fallen over the period from £10 million to around £3 million: 55% of bilateral support to basic drinking water was provided through NGOs in 2006/07 but this fell to 5% in 2010/11.

Table 6: Bilateral aid to WASH on basic drinking water by funding channel (*£ million)*

		2006/07	2007/08	2008/09	2009/10	2010/11	5-year total	5-year % increase
Multilateral organisation	£m	7.7	12.2	10.0	32.5	34.9	97.4	353%
Sector budget support	£m	10.9	1.1	12.3	3.1	7.1	34.5	-35%
Other financial aid	£m	5.6	12.4	11.6	4.5	11.3	45.4	102%
Not for profit organisation	£m	10.0	11.7	11.0	6.5	3.1	42.3	-69%
Procurement of services	£m	10.5	10.0	8.6	6.5	6.0	41.6	-43%
Procurement of goods	£m	0.0	0.0	0.0	0.3	0.0	0.3	-
Other bilateral aid	£m	0.4	0.1	0.0	1.6	0.8	2.9	101%
Humanitarian assistance	£m	0.0	0.0	6.3	0.8	0.0	7.1	-

50. **The majority of DFID multi-bi aid to WASH is delivered through UN agencies and the World Bank**. In 2008/09, 31% of DFID multi-bi aid was delivered through UN agencies and 69% through the World Bank. By 2010/11 the UN agencies accounted for 35% (£17.3 million) and the World Bank was 52% (£25.8 million). The main UN agencies identified as the delivery channel are UNICEF (£9.5 million in 2010/11) and UNDP (£5.8 million). UNICEF is consistently identified as a delivery channel, accounting for 10% of total bilateral WASH aid over the period. UNDP has seen a marked increase in 2010/11 from £1.2 million to £5.8 million, and accounted for 4% of total bilateral WASH spend over the 3-year period. The World Bank was identified as the channel of delivery for 33% of bilateral WASH aid over the period. The public sector was identified as the channel of delivery for 32% of bilateral WASH aid over the period, but this has fallen from 38% (£27.8 million) in 2008/09 to 26% (£21.8 million) in 2010/11.

Table 7: Bilateral spend on WASH by delivery channel (*£ million)*

	2008/09	2009/10	2010/11
Non-Government Organisations	**16.1**	**7.8**	**5.8**
Developing country-based NGO	3.2	1.1	0.4
Donor country-based NGO	12.0	4.1	3.0
International NGOs	0.4	0.5	1.3
Other NGOs	0.5	2.1	1.0
Public Sector	**27.8**	**22.5**	**21.8**
Recipient Government	27.8	22.5	21.8
Multilateral Organisations	**30.2**	**36.6**	**49.4**
Regional Development Bank	0.0	0.6	4.0
African Development Bank	0.0	0.6	4.0
UN	9.3	8.1	17.3
United Nations agency, fund or commission (UN)	0.0	0.6	1.8
United Nations Children's Fund	7.2	6.3	9.5
United Nations Development Programme	2.1	1.2	5.8
United Nations Human Settlement Programme	0.0	0.0	0.3
World Bank	20.9	26.9	25.8
Multilateral Other	0.0	1.0	2.4
Private Infrastructure Development Group	0.0	1.0	2.4
Other	**0.0**	**1.9**	**7.4**
Other	0.0	1.9	7.4
TOTAL	74.1	68.8	84.5

Multilateral expenditure on WASH[57]

51. **The World Bank, the European Commission, the African Development Bank and UNICEF are the main multilateral organisations that disburse aid to the water sector and to WASH**. For the sake of simplicity, other multilaterals have not been included and the figures may therefore be an underestimate of the total imputed amount of DFID funding to the water sector through multilaterals. To estimate DFID's imputed multilateral spend on water and WASH, OECD DAC data has been used which differs slightly from data reported by DFID. The different fiscal years and the time-lags in data also complicate analysis[58]. Using data from the OECD DAC, the share of total disbursements allocated to the water sector and WASH sub-sector for each multilateral is calculated (Table 8 and Table 9). In order to estimate DFID imputed spend, DFID contributions to these four main multilaterals (as reported in SID 2010) has been multiplied by the proportion of these organisations' spend reported as going to the sector (Table 10). However, the methodology used to calculate imputed spend here (which is the same as that used in DFID's Statistics for International Development) differs from that used by DFID's International Directors' Office (IDO) as described in Box 5 below.

Box 5: Differences in methodologies used to calculate imputed multilateral spend

In this Portfolio Reivew, expenditure levels attributable to the UK have been calculated by applying, for all MOs, the MO's percentage share of WASH spend within its overall portfolio in the specified period to the level of funding provided by the UK in the specified period. This is the methodology used in SID.

IDO's methodology for calculating imputed multilateral spend differs in the following way: For the multilateral development banks (IDA and AfDB), IDO takes account of the multilateral organisation's level of pre-existing capital – of which the UK can claim a share – in addition to the UK's share of new funding (that is, replenishment) in the specified period.

Table 8: Multilateral disbursements: Water sector and WASH

$ million, constant 2009 prices

[57] This section refers to multi-lateral expenditure other than through the bilateral channels already described.

[58] See Annex 1 for discussion of the methodology used and differences between data reported by DAC and by DFID

	2007			2008			2009		
	Total	Water	WASH	Total	Water	WASH	Total	Water	WASH
AfDB	1,158	158	122	1,766	200	161	3,008	213	180
EC	12,015	405	253	12,551	505	286	13,161	576	378
World Bank	11,078	718	469	9,036	705	475	12,639	746	508
UNICEF	1,004	44	44	957	41	41	1,086	46	46

Source: OECD CRS Database, accessed 17th July 2011

Table 9: Multilateral disbursements: Water sector and WASH

% of total disbursements

	2007		2008		2009		3 year average	
	Water	WASH	Water	WASH	Water	WASH	Water	WASH
AfDB	14%	11%	11%	9%	7%	6%	10.7%	8.5%
EC	3%	2%	4%	2%	4%	3%	3.9%	2.4%
World Bank	6%	4%	8%	5%	6%	4%	6.7%	4.5%
UNICEF	4%	4%	4%	4%	4%	4%	4.3%	4.3%

Table 10: DFID imputed multilateral expenditure on WASH £ million[59]

	2008/09		2009/10		2010/11	
	DFID contribution to org. (£m)	Imputed WASH spend (£m)	DFID contribution to org. (£m)	Imputed WASH spend (£m)	DFID contribution to org. (£m)	Imputed WASH spend (£m)
AfDB	139	11.9	139	11.9	139	11.9
EC	1,154	27.9	1,186	28.7	1,347	32.6
World Bank	574	25.8	560	25.2	927	41.7
UNICEF	17	0.7	22	0.9	24	1.0
Total		66.3		66.7		87.2

Expenditure on Policy and Research

52. **In 2010/11 DFID allocated £11.1m to support global programmes that research new and more effective ways to deliver better results and influence global WASH policy.** Table 11 shows that DFID spending on international programmes and policy processes has increased substantially over the past 10 years from a very low base and has increased 37% over the last 5 years. This reflects the importance DFID attaches to improving coordination and accountability within the global WASH sector. The figures include long term support to a World Bank trust fund working on WASH; the Water Partnership Programme, and an intermediary financial institution associated with the World Bank; the Water and Sanitation Programme. DFID has been a consistent supporter of the Water Supply and Sanitation Collaborative Council (WSSCC), a UN body focused specifically on sanitation and was a founding member of the Sanitation and Water for All partnership, a global platform for improved accountability whose secretariat is hosted by UNICEF. Policy Division also provides a small accountable grant to the Freshwater Action Network (FAN) which is a global civil society network working on WASH in Africa, South Asia and Central America.

53. DFID has a long track record of investing in applied knowledge and research for WASH, previously through the Engineering Knowledge and Research Programme (EngKAR) but in recent years through direct commissions from Policy Division. DFID's Research and Evidence Division (RED) recently provided a grant of £10 million over 5 years to the SHARE consortium, led by the London School of Hygiene and Tropical Medicine, to research key issues in sanitation and hygiene. The £11.1m total also includes support provided by the International Financial Institutions Department to global initiatives and

[59] Note that the figures in Table 10 are for WASH only, not for non-WASH water spending.

financing facilities designed to promote private sector involvement in WASH including Water and Sanitation for the Urban Poor (WSUP), the Private Infrastructure Development Group (PIDG) and the Global Partnership on Output Based Aid (GPOBA).

Table 11: Expenditure on International Policy and Programmes

Year	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
£m	0.5	1.4	2.1	4.1	5.9	8.1	8.8	6.8	10.7	11.1

Chapter 4. Value for money

Measuring value for money in WASH

54. **DFID is placing increased emphasis on value for money (VfM) in its programmes** (Box 6). The WASH PR focused primarily on the following aspects of value for money in relation to the bilateral programme, the multi-lateral programme and the policy and research programme:
    a) *aid allocation* – assessing whether DFID funds are being invested in the people in most need in those countries where they are likely to have the greatest impact
    b) *results achieved* – reviewing results achieved through DFID bilateral and multi-lateral spending on WASH
    c) *portfolio performance* – examining the strengths and weaknesses of recent and ongoing programmes supported by DFID
    d) *cost effectiveness* – assessing whether DFID funds are being used to support those interventions that have the greatest impact on poor people's access to WASH
    e) *efficiency* – examining DFID capacity to efficiently allocate and spend WASH funds including advisory capacity and skills and corporate systems

    The following Chapter does not set out to assess the overall impact of DFID spending on WASH, or attempt a comprehensive cost-benefit analysis, but rather presents an overview of VfM in relation to the WASH portfolio using specific examples to illustrate general findings. This discussion is set in the context of the discussion of overall assessments of the VfM of WASH interventions in paragraph 56 below; in sum, that **WASH interventions are classified by WHO as 'highly cost-effective' when compared to other health interventions using standardised measures of US$ per DALY averted**[60].

Box 6: DFID's approach to Value for Money

DFID is placing increased emphasis on value for money (VfM) in its programmes[61]. Put simply value for money is about maximising the impact of each pound spent to improve poor people's lives. The purpose of the current VfM drive is to develop a better understanding (and better articulation) of costs and results in order to better inform investment decisions. It does not mean only doing the cheapest things but rather understanding cost drivers and ensuring DFID gets the quality we need at the best possible price. It implies careful assessment of the evidence supporting an intervention and making our assumptions about how interventions deliver results more explicit. It does not mean only doing things that are easy to measure but it does mean getting better at measuring. Our partners play a critical role in delivering results and VfM was a key focus of the recent multi-lateral aid review (MAR). Our aim is to improve the VfM of all aid, not just DFID's own. To do this DFID needs to lead by example by increasing transparency and accountability in our own operations and being prepared to explain VfM decisions publically. Achieving VfM is part of an ongoing process of continuous improvement.

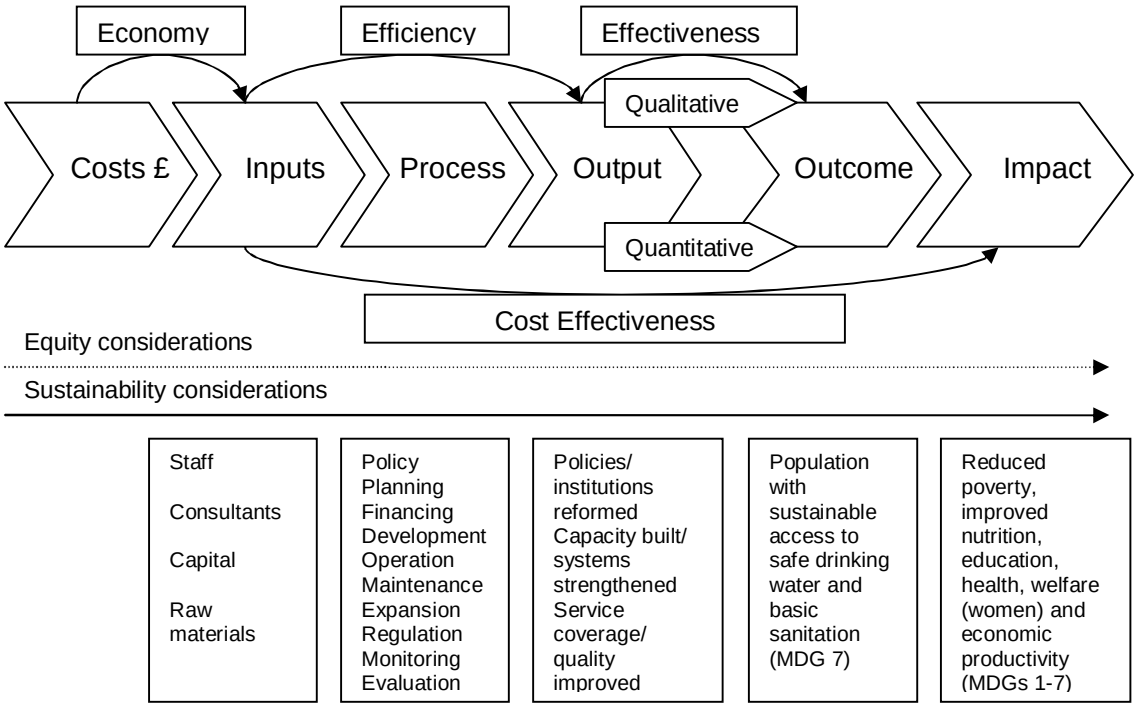
55. Figure 23 provides an overview of the results chain for WASH. As is common with development interventions, measuring the outcomes (e.g. services accessed and used, behaviours changed) and impacts (e.g. improved health, welfare and productivity) of WASH interventions is very difficult in routine monitoring and evaluation[62]. For this reason M&E tends to focus on outputs, e.g. improved coverage and system strengthened. **The Literature Review underlines the need to strengthen the evidence base relating to the strength of each of the linkages in the results chain for WASH**.

[60] WHO Commission on Macroeconomics and Health considers interventions with a cost-effectiveness ratio of less than three times the national GDP to be 'cost effective', and interventions with a ratio equal to or less than GDP to be 'highly cost-effective'.

[61] DFID's approach to Value for Money, July 2011

[62] This is due to the complex nature of transmission pathways; see evidence paper.

Figure 23: Illustration of WASH results chain



56. The WHO/UNICEF Joint Monitoring Programme (JMP) for water supply and sanitation[63] was established in 1990 with the core objective of monitoring access to drinking-water and sanitation. After the Millennium Declaration (2000) and the World Summit for Sustainable Development (2002) the JMP has been the official mechanism to determine progress towards achievement of the MDG targets (i.e. to 'halve by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation'). **JMP has played an important role in improving monitoring within the sector by leading a debate on definitions, standards, indicators and sources of data used to measure improvements in access** (i.e. outputs and outcomes). Understanding the reliability and comparability of reported access figures is important if we are to be able to assess value for money. Efforts are ongoing to harmonise definitions used and to reconcile figures produced by different agencies involved in collecting data at local, national and international levels[64]. The sector has made significant progress in recent years but much more remains to be done in order to build consensus around a commonly agreed set of indicators for monitoring WASH sector performance beyond 2015. DFID supports the JMP through Policy Division.

57. The evidence relating to the impact of WASH is summarised in Chapter 2[65]. The World Health Organisation (WHO) estimates that around 1.4 million child deaths are due to inadequate WASH and that improving hygiene, excreta disposal and hygiene practices for all would reduce global child mortality by a third. **Overall, WASH interventions have the potential to reduce the global disease burden (in DALYs) by 9.1% and global mortality by 6.3%.** The majority of the burden preventable by WASH is due to diarrhoeal diseases. In total, 64.2 million DALYs are attributed to inadequate WASH. Furthermore **WHO categorises WASH interventions as 'highly cost-effective' when compared to other health interventions using standardised measures of US$ per DALY**

[63] www.wssinfo.org
[64] WaterAid, WHO, UNICEF (2010) Data Reconciliation in Southern Africa
[65] See Evidence Paper for more in-depth analysis and discussion

averted[66]. Sanitation and hygiene promotion are among the most effective interventions for controlling endemic diarrhoea (approximately US$3 per DALY averted for hygiene promotion and US$11 for sanitation promotion), ranking higher on this basis than many other health interventions, including combating malaria, tuberculosis and HIV/AIDS[67]. The cost-effectiveness ratios for sanitation construction and handpumps or standposts are less favourable ($270 and $94/DALY) but still fall into the 'highly cost effective' category for most low income settings which is where DFID works.

Table 12: Cost-effectiveness of interventions against diarrhoeal disease (US$/DALY)[68]

Interventions against diarrhoeal disease	Cost-effectiveness ratio (US$ per DALY averted)
Cholera immunisation	1658 to 8274
Rotavirus immunisation	1402 to 8357
Measles immunisation	257 to 4565
Oral rehydration therapy	132 to 2570
Latrine construction and promotion	≤270
Household water supply connection	223
Hand pump or stand post	94
Water sector regulation and advocacy	47
Sanitation promotion only	11.15
Hygiene Promotion only	3.35

58. The figures from the WHO Disease Control Priorities in Developing Countries Project (DCP) reveal wide differences in cost per DALY averted across different types of interventions against diarrhoea. For example, hygiene and sanitation promotion and provision of water supply and sanitation infrastructure cost substantially less than oral rehydration therapy or cholera and rota virus immunization programmes (Table 12). But while it is useful to be able to compare the cost-effectiveness of individual interventions in this way, the evidence also points to the need for a balanced package of interventions tailored to different social and physical contexts. **Hygiene and sanitation promotion are cheap but need to be carefully sequenced with construction of WASH infrastructure in order to maximise impact.** Other interventions like Oral Rehydration Therapy are likely to remain important where WASH is inadequate and the prevalence of diarrhoeal disease is high. Vaccination against rota virus (a major cause of severe acute diarrhoea) has demonstrated promising clinical effectiveness but, as with most vaccines, it targets only single organisms. **The evidence is clear that combined improvements in water, sanitation and hygiene - which address each of the major transmission pathways - have the broadest potential impact on diarrhoea pathogens**.

59. **It is important to note that the impact of WASH investments varies significantly across different settings, depending on the underlying burden of disease and interventions already in place.** The global cost per DALY figures strongly suggest that investing in WASH is likely to be highly cost effective in any low income setting. Africa and South Asia account for over half the cases of childhood diarrhoea globally. In addition, the burden of inadequate WASH falls disproportionately on young children and that diarrhoea is the single biggest cause of under-five deaths in Africa. Comparisons between countries, or between states or regions within countries are more difficult but the few estimates available suggest good value for money**.** For example DFID India has

[66] WHO Commission on Macroeconomics and Health considers interventions with a cost-effectiveness ratio of less than three times the national GDP to be 'cost effective', and interventions with a ratio equal to or less than GDP to be 'highly cost-effective'.

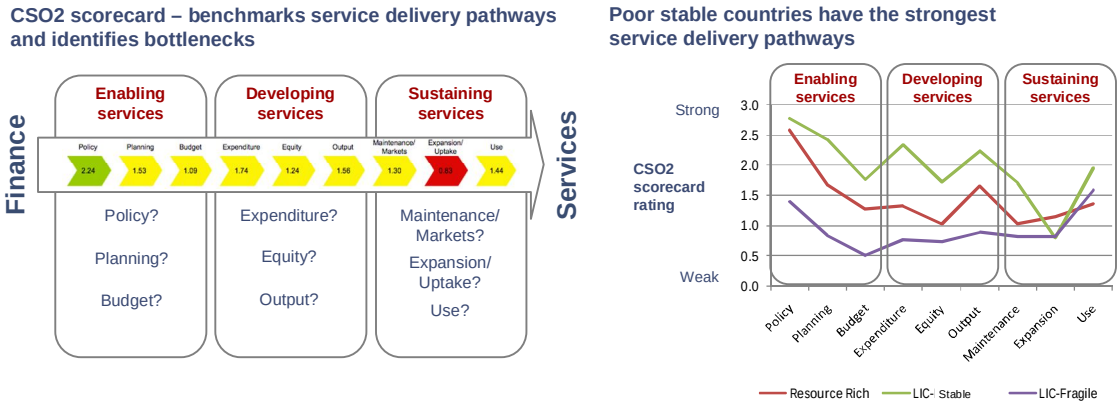
[67] Laxminarayan, Chow and Shahid-Salles, 2006. Note that global comparisons should be viewed with caution.

[68] Jamison et al (2006) Disease Control Priorities in Developing Countries (DCP2)

calculated that it's investment of £442m between 2011 and 2015 in four states (for health, nutrition and WASH), will directly avert over 100,000 child deaths and 13,000 maternal deaths, and reduce the number of underweight children by 2 million. DFID estimates that investment in India will directly save 7m DALYs at a cost of £63 per DALY attributable to DFID[69].

60. However, evidence strongly suggests that increased investment in a package of cost effective WASH interventions will not be sufficient on its own to ensure that potential health and non-health benefits are realised. The World Bank Water Supply and Sanitation Programme recently conducted a detailed analysis of factors affecting the efficiency and effectiveness of the process by which inputs (money) are translated into outputs and outcomes (services) in 32 countries in sub-Saharan Africa[70]. The Country Status Overview (CSO) uses a scorecard to benchmark the development of 'service delivery pathways' for water and for sanitation using a standardised set of criteria to assess progress in 'enabling', 'developing' and 'sustaining' WASH services. The CSO clearly shows that **the effectiveness of government and donor spending is heavily influenced by the quality of national policies and institutions responsible for WASH**. This is illustrated by the fact that low income stable countries have made better progress than their resource rich neighbours in terms of increasing water supply coverage, reducing open defecation, keeping up with population growth in urban water supply, and achieving more equitable access and better quality services (Figure 24)

Figure 24: Benchmarking service delivery pathways



61. The CSO findings provide **evidence of the importance of strengthening WASH sector systems or 'service delivery pathways' in order to maximise the value for money of government and donor spending on WASH**. The CSO Africa synthesis report recommends careful tailoring and sequencing of donor modalities in order to ensure effective support for different stages of sector development and reform. These range from project grants channelled to the sector ministry to build basic oversight capacity for implementation (e.g. DFID support to post-conflict situations in DRC, Sudan and Sierra Leone), to programmatic support via the ministry of finance in order to foster linkages between sector institutions and core government systems (e.g. recent DFID support in Ethiopia, Rwanda, and Bangladesh), and eventually sector or general budget support in order to provide sustainable services at scale (e.g. DFID support in Uganda, Tanzania and Vietnam).

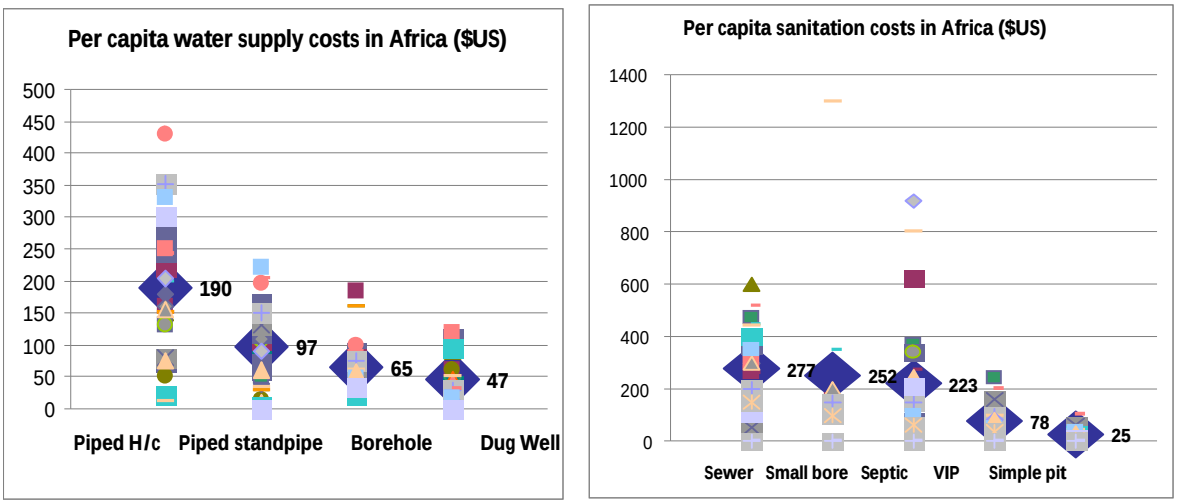
62. Finally **there is a lack of systematic data relating to the cost involved in providing and maintaining WASH services and how these vary across different settings**[71]. For

[69] DFID India BAR 'offer'
[70] WSP/AMCOW Country Status Overview 2 (CSO2)
[71] The World Bank maintains global databases of public expenditure enabling disaggregated analysis by country using commonly agreed standard sets of sector performance indicators (e.g. life expectancy at birth, female

this reason, national and global estimates of costs involved in reaching the MDGs need to be viewed with some caution. The lack of comprehensive data on input and output costs is a recognised constraint to improving VfM in the WASH sector. Public Expenditure Reviews conducted by the World Bank[72] highlight the difficulties of disaggregating spending on water from spending on sanitation and hygiene. Tracking sanitation expenditure is complicated due to the fact that it is typically spread across several different ministries (e.g. water, health, environment) and involves inputs from central government, local government/municipalities and households themselves[73]. Available data shows that WASH sector expenditure is largely accounted for by development or capital spending, with the proportion of recurrent spending being much lower than in other sectors[74] and recent research by WASHCost[75] points to a failure to consider the full lifecycle costs of providing and sustaining services (and associated benefits) in sector financial planning.

63. The Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS) shows that unit cost information reported by national governments and donors is limited, particularly disaggregated costs relating to sanitation and operation and maintenance[76]. The Africa Infrastructure Country Diagnostic (2007) showed that infrastructure services in Africa are almost twice as expensive as elsewhere and found significant variation within countries as a result of density, location, technological innovation and levels of urbanisation and market development[77]. The more recent WSP Country Status Overview (2010) confirms that the per capita costs of different water supply and sanitation also vary widely between countries. For example the average cost of piped connections to the household ranges from as little as $12/capita in Tanzania to $430/capita in South Africa (Figure 25). **Further work is required in order to develop more accurate estimates of unit costs in the WASH sector and to understand the major drivers of variations in costs across different settings.**

Figure 25: Per capita costs of water supply and sanitation in Africa ($US)



Source: AMCOW/WSP Country Status Overview

literacy rate, etc). While detailed information is available for both the health sector and the education sectors there is currently no such database for water supply and sanitation.

[72] http://go.worldbank.org/J1Q3060740

[73] See OECD

[74] For example, the PER in Tanzania (van den Berg et al, 2009) estimates that 55% of government spending in aggregate was allocated to the development budget, compared to a figure of 85% in the water sector

[75] http://www.washcost.info/

[76] Uganda is one of the few African countries which includes per capita investment costs as a routine indicator for measuring sector performance (see Annual Sector Performance Report, 2010)

[77] http://www.infrastructureafrica.org/aicd/flagship-report (Table 7.2 p199 shows pop density vs costs)

Resource allocation versus needs

64. **There are no commonly agreed criteria for targeting WASH aid according to needs**. The GLAAS (2010) reports that donors use a wide range of criteria including the following broad proxies of need: income, access, disease, aid received. It is important to note that DFID does not allocate money for WASH in isolation but rather allocates total bilateral aid to countries according to need and ability to absorb and spend it effectively. Decisions relating to allocation of aid across sectors are taken by individual country offices. However in order to assess whether DFID funds are being invested in those countries where they are likely to have the greatest impact it is important to consider the extent to which access to WASH, and in particular the attributable burden of disease, is adequately factored into both bilateral aid allocations and allocations across sectors.

Table 13: Developing country population without water[78]

	3yr Spend 07/09	DFID Country Programme[79]	Global top 20	people without water	(% access)
1	12,382,958	Ethiopia	China	148407000	89
2	6,032,513	Bangladesh	India	147255000	88
3	3,660,544	Nigeria	Nigeria	63573000	58
4	3,555,749	Sudan	Ethiopia	49895000	38
5	3,300,785	Tanzania	Indonesia	44834000	80
6	2,576,249	China	Congo, Dem. Rep.	34933000	54
7	2,574,279	Nepal	Bangladesh	32168000	80
8	2,396,280	Zimbabwe	Tanzania	19579000	54
9	2,021,540	Congo, Dem Rep	Pakistan	17892000	90
10	1,914,945	Liberia	Sudan	17690000	57
11	1,912,248	Sierra Leone	Kenya	16017000	59
12	1,860,310	India	Myanmar	14396000	71
13	1,523,103	Afghanistan	Afghanistan	14052000	48
14	1,160,453	Vietnam	Mozambique	11931000	47
15	1,148,105	Pakistan	Madagascar	11204000	41
16	971,416	Iraq	Uganda	10289000	67
17	845,310	Yemen	Angola	8924000	50
18	660,000	Rwanda	Yemen	8802000	62
19	605,518	Uganda	Philippines	8223000	91
20	530,894	Malawi	Niger	7589000	48
		Angola = 26	Nepal = 42	3448000	88
		Mozambique = 34	Rwanda = 44	3427000	65
			Malawi = 45	2913000	80
			Sierra Leone = 47	2857000	49
			Zim = 53	2235000	82
			Liberia = 64	1221000	68

65. Table 13 shows the DFID aid for WASH between 2007 and 2009 and numbers of people living without access to water. **Overall there was a strong correlation with DFID WASH programmes in 15 of the global top 20 countries in terms of numbers of people without access to water**. Indonesia is the only top 5 country which did not receive aid for WASH. Liberia and Zimbabwe are the only countries with DFID WASH programmes which are not in the global top 50. However actual levels of spending in priority countries do not necessarily reflect absolute needs. For example spending has been high relative to water needs in Nepal, Malawi and Zimbabwe while there has been little or no spending in Mozambique and Madagascar where needs are high. If we consider numbers of people without access to sanitation[80] (Table 14) the correlation remains strong with DFID programmes in 16 of the global top 20, but while 4 of the global top 5 for sanitation are located in Asia, 4 of the 5 biggest DFID programmes are in Africa. Table 15 shows the burden of diseases attributable to WASH in terms of mortality (number of deaths) and morbidity (%DALYs). It shows that **DFID had programmes in every one of the top 5 countries worst affected by lack of access and 13 of the top 20**. All of the DFID programmes are in the global top 50 but spending relative to needs is high in Zimbabwe while there is little spending in Kenya and no spending in Niger,

[78] See also % coverage

[79] Does not include regional and non-specific spend

[80] It is not possible to disaggregate DFID spending on water and sanitation for past projects.

Burkina or Mali. While good resource allocation vs. need is a necessary precondition for achieving VfM, actual impact will be determined by delivery. Results achieved against costs are discussed in paragraphs 71 - 73 below.

Table 14: Developing country pop w/out sanitation[81]

	3yr Spend 07/09	DFID Country Programme	Global Top 20	People w/out sanitation	(% access)
1	12,382,958	Ethiopia	India	818445910	31
2	6,032,513	Bangladesh	China	607335170	55
3	3,660,544	Nigeria	Indonesia	109169080	52
4	3,555,749	Sudan	Nigeria	103023260	32
5	3,300,785	Tanzania	Pakistan	98157120	45
6	2,576,249	China	Bangladesh	75067130	53
7	2,574,279	Nepal	Ethiopia	71388440	12
8	2,396,280	Zimbabwe	Congo, Dem. Rep.	49477640	23
9	2,021,540	Congo, Dem Rep	Brazil	38693510	80
10	1,914,945	Liberia	Tanzania	32371930	24
11	1,912,248	Sierra Leone	Sudan	27253720	34
12	1,860,310	India	Kenya	26777310	31
13	1,523,103	Afghanistan	Viet Nam	22197910	75
14	1,160,453	Vietnam	Philippines	21550440	76
15	1,148,105	Pakistan	Ghana	20431930	13
16	971,416	Iraq	Nepal	19841530	31
17	845,310	Yemen	Mozambique	18682540	17
18	660,000	Rwanda	Afghanistan	17087330	37
19	605,518	Uganda	Madagascar	16917940	11
20	530,894	Malawi	Uganda	16595870	48
		Ghana = 23	Malawi = 42	6551180	56
		Mozambique = 34	Zimbabwe = 44	6968880	44
			Sierra Leone = 48	4848850	13
			Rwanda = 51	4462690	54
			Liberia = 56	3162390	17

Table 15: Developing country burden of WASH related diseases

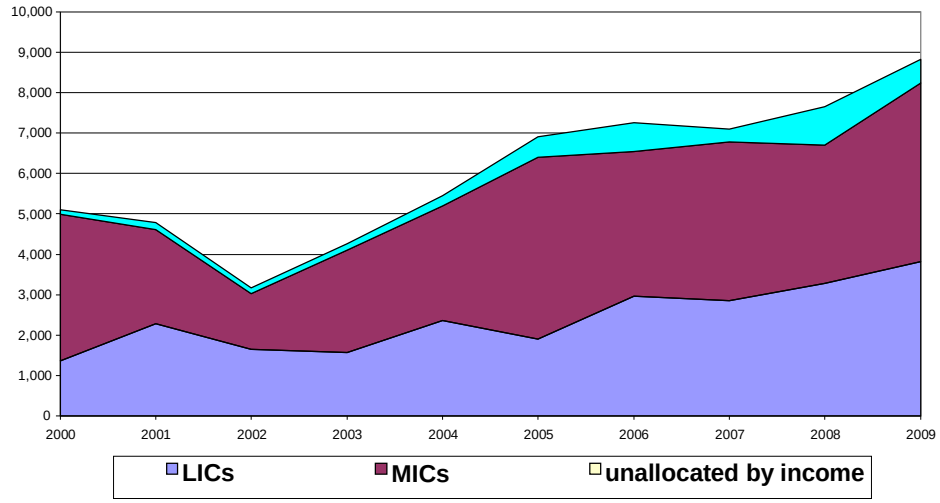
	3yr Spend 07/09	DFID Country Programme	Global Top 20	# Deaths ('000)	(% DALYs)
1	12,382,958	Ethiopia	India	744.6	9.4%
2	6,032,513	Bangladesh	Nigeria	361.9	17.3%
3	3,660,544	Nigeria	Congo, Dem. Rep.	193.9	18.8%
4	3,555,749	Sudan	Ethiopia	192.7	19.3%
5	3,300,785	Tanzania	China	162.9	3.7%
6	2,576,249	China	Afghanistan	105.3	19.8%
7	2,574,279	Nepal	Bangladesh	104.4	10.2%
8	2,396,280	Zimbabwe	Pakistan	97.9	8.3%
9	2,021,540	Congo, Dem Rep	Angola	76.6	21.7%
10	1,914,945	Liberia	Niger	72.4	25.6%
11	1,912,248	Sierra Leone	Tanzania	65.6	14.0%
12	1,860,310	India	Indonesia	57.6	4.4%
13	1,523,103	Afghanistan	Uganda	52.9	15.0%
14	1,160,453	Vietnam	Burkina Faso	44.6	22.2%
15	1,148,105	Pakistan	Kenya	42.4	11.5%
16	971,416	Iraq	Sudan	41.7	12.8%
17	845,310	Yemen	Mali	40.3	20.9%
18	660,000	Rwanda	Brazil	40.2	4.0%
19	605,518	Uganda	Cote d'Ivoire	39.3	12.8%
20	530,894	Malawi	Myanmar	36.4	9.9%
		Angola = 26	Malawi = 23	32.9	16.2%
		Kenya = 35	Rwanda = 30	26.7	18%
			Sierra Leone = 31	26.1	20.6%
			Nepal = 35	22.2	11.3%
			Liberia	11.9	18.3%
			Zimbabwe = 44	5.3	12.4%

66. **Any analysis of how DFID allocates resources and whether investment choices represent VfM needs to take account of what others are doing.** This is because the allocation of resources by government and other donors and their choice of WASH interventions will significantly affect the marginal benefit of DFID investing in WASH in a given context. But, as noted in the previous section, comprehensive information on total levels of WASH spending is currently lacking. While the OECD DAC Creditor Reporting System (CRS) provides a basis for improved coordination among WASH sector donors at the global level, information on existing and planned investment by national governments, NGOs, private sector and households is generally not readily available even at the country level. The UN-Water GLAAS initiative aims to strengthen the reporting of in-

[81] See also analysis of % coverage

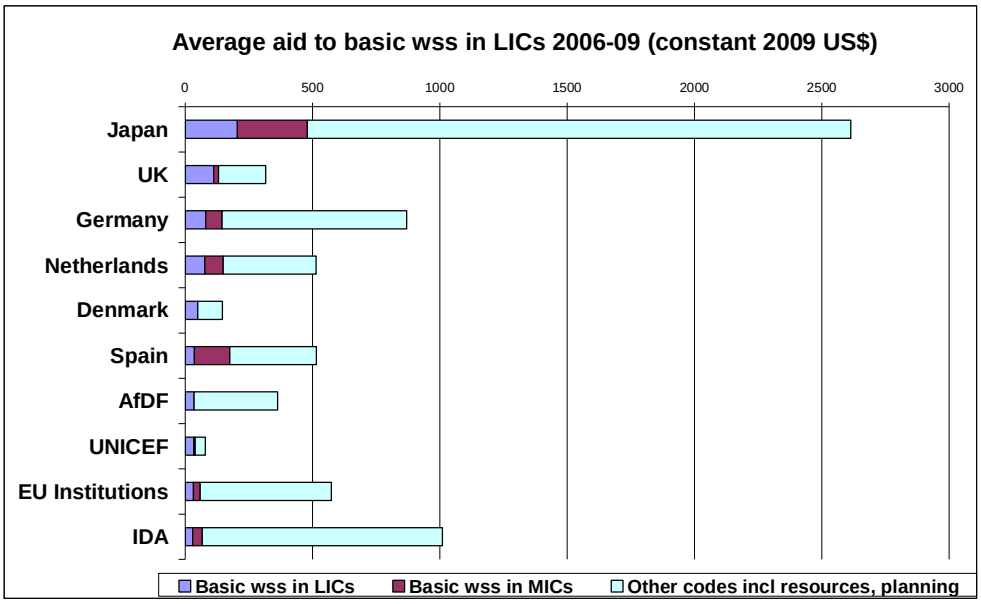
country financial flows for WASH over the next two years so that data is much more readily available by 2015.

Figure 26: ODA commitments to all purpose codes by income group (2008 constant US$)



67. **UK aid to WASH, although relatively small, is well targeted towards meeting the MDGs in poor countries**. Figure 26 shows the allocation of WASH aid between 2000 and 2009. It shows that less than 50% of water sector aid flows to Low Income Countries (LICs) while the majority goes to Middle Income Countries (MICs). Furthermore the share allocated to basic services has fluctuated and increased slowly despite MDG commitments. Figure 27 provides a breakdown of aid provided by the top ten donors to basic water supply and basic sanitation in LICs for the average of the last four years (2006/09[82]). In 2009 the UK was only the sixth largest bilateral donor by commitments to the water sector, with Japan, Germany, France Spain and the US all making larger commitments, but was the second largest donor of aid for basic services in LICs.

Figure 27: Donor support to basic water supply & basic sanitation



[82] The figure for Japan is influenced by the very large increase in this category in 2009, although there is some doubt as to whether this increased amount is based on accurate use of the CRS purpose codes

68. **The above analysis indicates that DFID is broadly doing the 'right things' in the 'right countries' while highlighting a number of gaps and opportunities for DFID to work with other donors to provide more and better targeted aid to countries with high WASH needs.** But it is important to first consider the results achieved by different types of activities funded by UK aid in-country, and in particular the balance between direct interventions to deliver services and efforts to strengthen wider sector systems that enable services to be delivered efficiently and effectively. Interviews with advisers further highlight the importance of understanding the 'political economy' of WASH sector development in order to decide on the timing and sequencing of different types of investment for maximum impact.

Value for money and results achieved in bilateral programmes

69. The following section is based on analysis of project documents relating to previous and ongoing bilateral programmes. The 25 projects in the sample account for approximately 70% of DFID WASH spend over the past 5 years. The main sources of information were project concept notes, mid term reviews, project completion reports and project evaluations. The details of DFID's future WASH programmes from 2012-2015 are still being developed but wherever possible the BAR offers and Operational Plans were also included in the analysis in order to enable an assessment of broader trends in DFID's approach to achieving value for money in WASH.

70. **DFID programmes are focused on the MDGs.** DFID's bilateral WASH programmes are all focused in countries which are off-track in achieving MDGs for either water supply, or sanitation, or both. For example, Mozambique, DRC and Sierra Leone have some of the lowest levels of access to water supply and sanitation representing considerable potential to influence MDG progress[83]. India is on track to meet the water target, but remains a long way off track for sanitation which is the main focus of the DFID WASH programme. In fact almost every country has made better progress on water and it is only recently that governments and donors have started to make a concerted effort to reverse the neglect of sanitation. Analysis of DFID project documents since 2004/5 reveals increasing attention to sanitation, particularly following the international year of sanitation in 2008. But, as discussed in Chapter 2, efforts to systematically disaggregate target numbers of beneficiaries and reported expenditure on water, sanitation and hygiene are still ongoing.

71. **The rationale for investment centres on health and economic impacts**. DFID project documents all underline the significant contribution of diarrhoea to the burden of disease, typically accounting for between 10 and 20% of DALYS. For example in India alone, diarrhoeal diseases (90% of which are attributable to inadequate WASH) account of over 744,000 deaths each year and kill around 1000 children every day (20% of child deaths). In parts of Pakistan sanitation coverage is below 10% and Multi-Indicator Cluster (MIC) surveys indicate that 14% of child deaths are attributable to diarrhoeal diseases. In Nigeria, diarrhoea causes one fifth of all under-five deaths and killed over 20,000 children in 2008 while in Mozambique it was responsible for 12% of all under-five deaths or 13,105 deaths in 2008. Diarrhoea leads to 10% of all child deaths (third leading cause) in Vietnam. DFID Tanzania reports that diarrhoeal diseases are the leading cause of treatment in health facilities. A number of project documents also include estimates of economic impacts. For example inadequate sanitation is estimated to cost the Vietnamese rural economy around $490m each year and the Nepalese economy around

[83] When the Sierra Leone WASH programme was established in 2005 it aimed to reach 1.5m, which at that time represented almost 30% of the total population, effectively enabling Sierra Leone to meet its MDG target for water supply. The Nigeria WASH programme target to reach 8m people is even more ambitious, but if Nigeria fails to meet the 2015 targets then the continent of Africa as a whole will fail to meet the MDG target.

$150m per year[84]. **Country programmes use different methods and sources of data to calculate health and economic impacts and so it is difficult to compare across countries or aggregate the estimates**.

72. **DFID supported WASH programmes report significant results against costs**. DFID's bilateral results during the period March 2008 – October 2009 are summarised in Table 16 below. During this period DFID bilateral programmes provided 2.7 million people with access to clean drinking water and 1.8 million people with access to improved sanitation in sub-Saharan Africa. In South Asia DFID provided 3.1 million people with access to clean water and many more with access to improved sanitation. Further, analysis of individual DFID supported WASH programmes suggests that programmes are consistently achieving substantial results in relation to costs. For example, the SHEWA-B project in Bangladesh aims to improve the hygiene behaviour of 30m people and provide sanitation to 5.1m people over 5 years. It is a highly ambitious project but recent reviews show that it is largely on track to reach this target. The DFID contribution is £36m so the overall cost per beneficiary is estimated to be £1.56 for hygiene promotion alone. Another good example of DFID achieving results at scale is the Pakistan North West Frontier Project which provided water and sanitation facilities to 1.6m people over 5 years. The total DFID contribution was £6.9m so while the target cost per beneficiary was £6.90, the actual cost was around £4.30 for water and sanitation. Results for a sample of programmes are summarised in Table 18 below. Spend figures include humanitarian programmes whereas beneficiary numbers do not, therefore it is not possible to calculate accurate cost / beneficiary figures.

Table 16: Results achieved through bilateral programmes during the period March 2008 – October 2009¤

	No. of people gaining access to clean water (millions)	No. of people gaining access to improved sanitation (millions)	Spend (millions) †
Africa	2.7	1.8	£41.3
South Asia	3.1	25.5*****	£19.6

¤Figures from 'Meeting our promises 2010: Providing greater access to water and sanitation and improving water resources management'.

*****The apparently high figure here is principally due to the way in which sanitation beneficiary figures were measured during this period. Beneficiaries in communities in which Community Led Total Sanitation (CLTS) or Community Approaches to Sanitation (CATS) had taken place were assumed to have gained access to improved sanitation. Country offices have now become more rigorous about how access to improved sanitation is measured. With new methods of measurement, it is likely that many of the beneficiaries recorded here would have been recorded as having received hygiene promotion rather than access to improved sanitation.

†Spend calculations are in fact from April 2008 – September 2009, rather than March 2008 – October 2009. Any inaccuracies are likely to be minor.

[84] While the evidence relating to economic impacts is less robust country advisers report that developing country governments are often more interested in economic impacts than in health impacts

Table 17: Beneficiaries reached through bilateral programmes March '08 - Oct '09

	Numbers reached Mar 08 - Oct 09			
Country	**Water**	**Sanitation**	**Total**	**Spend (£)**
Congo, Dem Rep	509,000	322,700	831,700	4,464,620
Ethiopia	760,000	506,600	1,266,600	23,508,216
Malawi	618,500	149,100	767,600	868,435
Mozambique	80,000	30,000	110,000	40,550
Nigeria	500,000	170,000	670,000	3,909,503
Sierra Leone	50,600	545,800	596,400	2,862,312
Sudan	51,000	2,300	53,300	5,443,134
Tanzania	112,900	62,000	174,900	4,997,223
Zambia	23,100	23,100	46,200	692,500
Zimbabwe	39,200	1200	40,400	5,706,707
Afghanistan	361,900	361,977	723,877	4,039,099
Bangladesh	1,913,000	13,684,000	15,597,000	10,477,470
India	270,000	11,270,000	11,540,000	3,201,717
Pakistan	500,000	200,000	700,000	1,879,298
Nepal	34,000	34,000	68,000	3,955,414

†The variation in cost / beneficiary between countries has several causes. Firstly, the cost of materials, labour and construction vary between countries. Secondly, there is significant variation in the type of programme being implemented but, at the present time, no way of expressing this in our results. For example, the cost of providing clean water to a rural community will inevitably be higher than the cost of carrying out CLTS programmes, where the majority of capital costs are provided by households themselves.

Table 18: Examples of results reported by major DFID WASH programmes

Country/ Programme	**DFID contribution (total £millions)**	**Target beneficiaries (millions)**			**Beneficiaries to-date (2009)[85] millions**			**Cost/beneficiary†**
		Water	San	Hyg	Water	San	Hyg	
Ethiopia	75	3.2			1.8			
SHEWA-B (Bangladesh)	36	5.1	30		1.2	4.5		1.03
ASEH (Bangladesh)	13	1.88	4.27	5.74	1.79	5.6	6.84	0.94 (0.91)
Pakistan	6.9	1			1.6			6.9 (4.3)
Nigeria	19.2	0.55						
Sudan BSF	5.7				0.273	0.033		(18.6)*
China	17	.77	.66					17.5
Sierra Leone	32	1.5 (rural)						11.5

† Figures in brackets are 'actual' cost / beneficiary. Figures not in brackets are project targets. Projects with target figures only are either still in progress or complete but PCRs have not yet been completed. Note that costs / beneficiary could not be separated for water, sanitation and hygiene as spending on these three intervention types are often not separated in project budget lines. This is therefore an amalgamated figure.

*The PCR has not yet been completed for this project so this is an early estimate.

[85] Note that this cost is not pro-rated according to the proportion of the total project budget provided by DFID – rather the cost to DFID has been divided by the total no. of project beneficiaries, even where other organisations contributed funds. This is based on the assumption that the project would not have gone ahead without DFID's contribution

Box 7: Results achieved by the DFID supported NWFP in Pakistan[86]

- This project faced many challenges during its implementation period, including changes in government, an earthquake and an insurgency and war in the Province. Despite this, the Project surpassed its targets.
- The rural water supply and sanitation project was designed in line with a new District Government system put in place in 2002, where communities were expected to play a larger role in development, working with decentralised departments responsible for infrastructure provision in the water and sanitation sector. The project was implemented between 2003 and 2008, but delays occurred in the first two years due to external events including an earthquake and security challenges.
- The main objectives of the five-year Project included: the provision of sustainable integrated water and sanitation services to around one million people to improve their health, productivity, income generation capacity and overall socio-economic conditions in the NWFP; the promotion and use of demand-driven participatory design procedures and affordable standards for water and sanitation services; and the promotion of enhanced hygiene programmes, with a focus on gender and infant/child mortality issues to stimulate demand for and use of safe sanitation and hygiene practices.
- A key aim of the Project was to strengthen the overall capacity of the Local Government Election and Rural Development Department (LGERDD), in particular at the Tehsil Municipal Administration (TMA) level to collaborate with rural communities in implementing the low-cost water and sanitation programme.
- The Project was devolved into ten Regional Offices (ROs) and covered all the 24 districts in the NWFP, and the 54 TMAs. The Project intervened in 690 of the 986 Union Councils that existed in the NWFP
- A number of infrastructure schemes were installed during the course of the five year project, including drinking water schemes, mainly hand pumps and gravity schemes; street paving and drainage/sewage schemes; and demonstration latrines, primarily in schools. The original target of 5,527 schemes to be implemented by June 2008 has been exceeded, and 8,270 schemes have been implemented, all of which were implemented in the last three years of the project.
- More than 6,000 community organisations were either formed or upgraded to Citizens Community Boards (CCB) status, involving 140,000 individuals.
- The original target of the project was to reach approximately 1 million people. However, the project actually succeeded in reaching around 1.6 million, or almost 7 to 8 percent of the population.
- In the opinion of one DFID adviser working on the project, the project was a success because it was low cost, with very simple schemes manageable by local government with high levels of community involvement and social mobilisation.

73. **Costs per beneficiary tend to be higher in Africa than Asia and vary widely, but generally still represent good value for money given potential health and economic impacts**. For example analysis of project documents shows that the per capita cost of providing rural water supplies in larger and/or more densely populated countries such as Nigeria, Ethiopia and DRC is lower than in smaller and/or less densely populated countries such as Malawi, Mozambique, Tanzania and Zambia (Table 19).

74. Experience shows that per capita costs increase sharply in post conflict situations (e.g Liberia and Sierra Leone), countries with remote or inaccessible populations (e.g. Nepal) and countries where trade in goods and services is restricted (e.g. OPT). To put this in perspective, analysis by OfWat shows that the average cost of providing a new household water supply connection in the UK currently ranges from £274.50 to £977[87].

Table 19: Estimated per capita cost of rural water supplies

[86] Extracts from Independent Impact Evaluation, December 2009

[87] OfWat (2010) Comparative study: cost of new water supply connection (Section 45 Water Industry Act 1991)

DFID WASH programme	Bangladesh	DRC	India	Malawi	Mozambique	Nepal	Nigeria	Occupied Palestine Territories	Sierra Leone	Tanzania	Vietnam	Zambia
Cost per capita (£)	9	9	4.5	24	25	50	1.5	60	52	15.7	25	15.2

75. **Methods for calculating and comparing beneficiary numbers from different data sources lack consistency**. The review identified a number of areas where project reporting could be strengthened. For example, not all past projects defined absolute numbers of beneficiaries at appraisal and completion but rather specified number of water points/latrines, number of villages ODF or percent changes in coverage (Box 8). The assumptions regarding numbers of beneficiaries are not always explicit making it difficult to compare across projects. For example, numbers using a facility may vary widely within and between countries according to population density and other factors, although most countries have established norms and standards. Lack of standardisation in the way in which results are reported is a wider challenge in the WASH sector. Developing country government systems for tracking value for money are often limited and tend to be more robust on inputs than outputs and outcomes.

Box 8: Accelerated and sustained progress on rural sanitation in Cambodia

The purpose of this DFID supported UNICEF programme in Cambodia was to support the Ministry of Rural Development to effectively manage, coordinate and facilitate the delivery of sanitation services including hygiene promotion with a specific focus on meeting the needs of poor men, women and children. One of the targets was to 'improve sanitation coverage from 16% in 2005 to 20% by 2010 and 30% by 2015'. The project completion report shows that the project made very good progress against agreed performance indicators. Among other things sanitation coverage increased from 16% in 2005 (CDHS 2005) to 23 % (2008 General Population Census) enabling Cambodia to meet its MDG targets. A draft report of Hygiene KAP survey (conducted in September 2010 in 12 provinces, 4 geographical regions involving a total of 1620 randomly selected households in 81 villages) further shows that 29.6 % of respondents have toilets at home; 80% of them use toilet at all times (at home and at public places) and 90% report that their children also use toilet; potties were observed in 43% of households with toilets; 81% respondents reported washing hands with soap at critical times. The PCR concludes that these are significant achievements and the project rightly scores highly (95%). But from the figures provided in project documents it remains difficult to calculate absolute numbers of beneficiaries and to compare and aggregate these with programmes in other countries.

76. **DFID has long recognised the importance of investing in strengthening WASH sector core systems as well as direct interventions to increase access but measuring results in this area remains a challenge**. Standard Indicators (SIs) for WASH were revised in 2010 to promote a stronger focus on quantitative results. The review found more consistency across indicators used in the design of more recent projects although these have yet to report results. The new SIs are mainly concerned with numbers of direct beneficiaries and encourage disaggregation by gender. The indicator set is still being refined and interviews with advisers highlight the need to develop additional indicators on sustainability (e.g. functionality and use of facilities and sustained sanitation and hygiene behaviours) and to devise more consistent approaches to measuring indirect beneficiaries (i.e. through utility reforms or policy and institutional strengthening and advocacy). There is also a growing recognition of the need to get better at monitoring and reporting how expenditure on WASH contributes to results in other sectors, particularly education and health (see Chapter 5).

77. **There is some evidence of DFID bilateral WASH programmes supporting innovation but mostly small pilots, not enough at scale**. Analysis of recent and ongoing projects revealed a number of examples of innovative projects designed to trial new technologies and new approaches to WASH service delivery and advocacy. Examples include, among others, working with private vendors to improve the quality of

water they provide to 83% of the population in Gaza, offering grants for schools to provide dedicated toilets for girls in northern Nigeria, supporting a coalition of civil society organisations promoting WASH reforms in Liberia, piloting a credit scheme to support household investment in sanitation in Vietnam and establishing a challenge fund in Malawi to support innovations to improve sustainability. However the review found limited evidence of innovations being scaled up by governments and other donors to achieve wider impacts. Important exceptions are Community Led Total Sanitation that was actively supported by DFID and has subsequently spread from Asia to Africa (Box 9) and Sustainable Services through Domestic Private Sector Provision (SS-DPSP) that was piloted with DFID support in 2009 and has now been mainstreamed as a core business area within WSP operations around the world.

Box 9: DFID support to innovation in WASH: CLTS

Community Led Total Sanitation (CLTS) was born in Bangladesh in 1999 through the DFID-funded WaterAid programme that supported the work of a local NGO; the Village Education Resource Centre (VERC). Since its beginnings in Bangladesh, CLTS has spread throughout Asia and to Africa. The approach focuses on empowering communities to take responsibility for eliminating open defecation. It avoids prescriptive approaches and encourages the communities to find their own solutions to ensuring that everyone has access to a latrine. Financial resources are not usually provided for individual households but may be available for schools and health clinics. In some situations community wide rewards are provided by government once a whole community is declared open defecation free (ODF). DFID has been in the lead in supporting the initiative following the many failures of top-down heavily subsidised sanitation programmes that have frequently failed to deliver long term results. Research into the impact and the different approaches to CLTS has been carried out by the Institute of Development Studies (IDS) at the University of Sussex. WSP, UNICEF and WaterAid have been instrumental in taking up the initiative and spreading it throughout the regions and community led approaches are now enshrined in the policies of most countries in Asia and many in Africa. WSP is currently working on coupling the demand led approach of CLTS to supply led sanitation marketing so that demand and supply side are matched and has reported positive initial results in Asia.

78. **Sustainability is a growing concern and threatens to undermine the potential impact of WASH sector investments.** While some countries report relatively high levels of access to improved water supplies, project documents reveal that actual levels of functionality are often much lower and emphasise the critical importance of service sustainability in ensuring that the potential benefits of investment in WASH are realised and sustained. Nepal, for example, reports over 75% water coverage but is unlikely to meet MDGs because of high levels of scheme non-functionality[88]. Malawi is officially on track to meet its water target (85%) but recent estimates suggest nearly a third of water facilities do not work reducing effective coverage to 55%. Sustainability is a growing concern in project documents but DFID currently has no way of systematically monitoring whether or not services continue to function and behaviours are in fact sustained beyond the end of a project. Box 10 summarises WaterAid's efforts to ensure sustainability[89].

Box 10: WaterAid's Sustainability Framework[90]

Wateraid's Sustainability Framework adopts the following definition of sustainability:
'Sustainability is about whether or not WASH services and good hygiene practices continue to work and deliver benefits over time. No time limit is set on those continued services, behaviour changes and outcomes. In other words sustainability is about lasting benefits achieved through the continued enjoyment of water supply and sanitation services and hygiene practices'

It identifies 3 main reasons why sustainability poses such a challenge to the WASH sector:

- Limited capacity (of communities, local government institutions and service providers)
- Inadequacy of financial revenues (to cover full operation, maintenance and capital costs)

[88] It was recently estimated that around 45% of all existing systems are in need of major repairs, rehabilitation and complete reconstruction (WASH Sector Assessment Report, May 2011)
[89] DFID supports WaterAid through a Project Partnership Agreement
[90] WaterAid (2011) Sustainability Framework

- Fragmentation of approaches (competing agendas and a disregard for government frameworks)

It notes the importance of monitoring sustainability and commits all country programmes to:

- Maintain records of functionality and utilisation of water and sanitation services, based on simple 'red flag' indicators, at one year, three years, five years and ten years after implementation, and, especially in the case of hygiene practices, through special studies.
- Work with government institutions to strengthen monitoring systems which include data form all sector players.

Value for money and results achieved through DFID's support to private sector involvement in WASH

79. **Examples of DFID's support to private sector involvement in WASH (Box 11) suggest that DFID is leveraging expertise and innovation. Mobilising private investment in WASH remains challenging in low-income countries, but private operators continue to play a significant role in the delivery of water and sanitation services. DFID will continue to expand its support to overcome barriers to private investment and to mobilise private sector expertise in service delivery.** In the late-1990s, it was expected that the international private sector would be a major source of finance and expertise for driving investments in water supply and sanitation. Projected increases in investment by international private sector have not materialised and many early investors have pulled out of the sector as a result of high profile failures. Private investment commitments remain low today; only $2.3 million of the $170 million of private investment in infrastructure in developing countries in 2010 was in the water and sanitation sector. These figures are dwarfed by the £4.4 billion of non-concessional lending to the water sector reported by the OECD in 2010.

80. However while private investment in the WASH sector is low the private sector continues to play a significant role in the delivery of water and sanitation services. A recent review by the World Bank[91] estimates that around 160 million people in the developing world are now being served by private providers. Analysis suggests that private participation in the water sector can help to improve efficiency and increase coverage.

81. In many developing countries utilities do not reach large parts of the urban population. Therefore hundreds of millions of people are receiving water from the small-scale domestic private sector. As water utility coverage is not currently keeping pace with urbanisation and utilities face many challenges in reaching informal or isolated communities, ensuring that these providers are delivering safe, affordable water is likely to play an important role in achieving the WASH MDG targets.

82. DFID has a track record of supporting innovative initiatives that address market and non-market failures in WASH, including the development of local private operators, helping to strengthen the enabling environment for private sector involvement in WASH, and funding Output-Based Aid (OBA). Market and non-market failures in WASH service provision are discussed in Box 11, and DFID-supported initiatives that aim to overcome these failures are set out in Box 12.

Box 11: Market and non-market failures in private sector water and sanitation service provision, and strategies to overcome them.

In theory the 'marketability' (i.e. potential for private sector involvement) of water services is reasonably high. Piped water provision is 'rival'; consumption by one user reduces supply available to others, and 'excludable'; users can be excluded from its use. These are the key characteristics of a private good. However, attempts to leverage private sector involvement in water supply in developing countries have had limited success as described above.

[91] For detailed analysis and discussion of the potential of private sector involvement in WASH see Marin, P et al (2009) Public Private Partnerships for Urban Water Utilities: a review of experiences in developing countries. World Bank, Public Private Infrastructure Advisory Facility.

The principal market failures associated with water and sanitation services (WSS) are: natural monopoly characteristics; positive externalities and merit good characteristics; and, lack of access to investment capital by utilities (and municipalities), due in part to the long-term nature of the required investments.

Natural Monopoly Characteristics: In a natural monopoly, the lowest long-run average cost (and thus the highest productive efficiency) is achieved by concentrating production in a single agency. In common with other utilities, WSS have natural monopoly characteristics due to the high capital costs of developing the infrastructure required to supply water. This creates economies of scale that are large in relation to the size of the market and thus high barriers to entry to other producers. The difficulty of generating competition in the case of private provision (and the associated risk of high pricing and social welfare loss where service is dominated by one private provider) has resulted in the historical placement of WSS in public hands. To address the lack of competition strong regulatory institutions need to be put in place to ensure value for money and good quality of service for the customer, as has been done to regulate the UK water market.

Positive Externalities and Merit Good Characteristics: WSS services have multiple positive externalities which will not be captured in the financial rate of return of investment, for example improvements in public health and reduced burden on women and girls (discussed in Chapter 2). Private investors will not capture the benefits of these externalities; i.e. investment in WSS has a far higher economic rate of return than financial rate of return. Further, access to clean drinking water is widely perceived as a 'merit good', i.e. a good or service that is deemed to have positive externalities or considered to be so important that society believes that everyone should have access to it (another example is education).

These qualities of WSS contribute in large part to the unwillingness or inability of service providers in many cases to charge the full cost of investment and operations to the end user (cost recovery); a key constraint to the WSS sector operating as an open market. The policy choice of government to keep water tariffs artificially low can be seen as valid given the public good nature of the sector. But in order for the market to operate governments need clear subsidy mechanisms to support this policy choice.

In many cases attempts to overcome the market failures described above take the form of Public-Private Partnerships (PPPs) in which a public authority and private sector service provider enter into contract, with the private sector providing services involving any combination of investment capital, management, and operation and maintenance, but with continued involvement of and regulation by the public sector.

Lack of Access to Investment Capital: In many developing countries financial markets are under-developed and private sector actors struggle to access finance on commercial terms. This is particularly challenging in the case of infrastructure investments which require a long tenor, i.e. the investment is unlikely to see a positive returns for many years.

In addition to the market failures described above, low levels of private sector investment are attributable to weaknesses in the enabling environment for private sector investment (often described as 'non-market failures'). These include weaknesses in the regulatory framework which create risks and disincentives to invest, risks associated with political instability and exchange rate risks.

Difficulties in attracting private investment from the international private sector are also attributable to a number of high-profile failures associated with private sector involvement in water provision in recent decades, which have made such arrangements less attractive to both governments and private sector actors.

Measures to overcome barriers to private investment in a sustainable way need to address both market and non-market failures. Several innovative approaches have been developed, including a variety of PPP models, support to the domestic private sector (donor focus during the 90s was principally on the international private sector), output-based aid, and technical assistance to developing country governments to improve the enabling environment. Donors are also increasingly considering approaches that use an element of concessional finance to attract private sector investment, thereby effectively providing the private sector actor with a synthetic return. DFID's support to these and similar initiatives is described in Box 12.

Box 12: DFID support to private sector involvement in the WASH sector

- DFID supported WSP's Sustainable Services through Domestic Private Sector Provision (SS-DPSP) programme in 2009 to help addres barriers that are preventing the scale up of service provision to the poor by the demoestic private sector. The 2011 Annual Review found that "although SS-DPSP is a new programme it is building on the work of both its parent WSP and its predecessor DPSP and therefore it has started to achieve results ahead of initial expectations and is highly likely to achieve most of its purpose level indicators." Two highlights of the programme have been in Kenya where a project for utilising microfinance has financed investments in 12 projects, and in the Philippines where WSP have established a national revolving fund for small accredited private water utilities.
- Water and Sanitation for the Urban Poor (WSUP) is a public private partnership where members contribute money and expertise to work toward expanding urban utilities coverage to include low income consumers. WSUP work in Madagascar, Bangladesh, Mozambique, Kenya, Zambia, Mali and Ghana and in addition to members' funds is currently funded by USAID, AusAid and the Gates foundation. DFID was the initial funder and is currently considering further support based on a new partnership between WSUP and the Dutch utility Vitens-Evides.
- WSUP have a strong focus on working with communities and small independent providers who in many cities are a vital link in reaching low income consumers. They also have access to a wide range of expertise from their partners including engineering, community engagement, the sanitation value chain and franchising and branding. At present they are working with one of their members Unilever to develop an innovative private sanitation package for urban areas.
- The most active of the Private Infrastructure Development Group (PIDG) facilities in the WASH sector is DevCo which is run by the PPP Advisory Services Department of the International Finance Corporation (IFC). DevCo provides support to governments for professional project preparation to shape proposed transactions, find investors and bring them to financial close. DevCo has spent $5.1m on the Water and Sanitation sector including work in Uganda, Mozambique, Rwanda, Egypt and the Philippines. The water and sanitation projects that have reached financial close by 2011, will deliver new and improved water and sanitation service to over one million people. In the water sector DevCo is looking to build on its experience of working with the domestic private sector in Uganda where traditional transaction advice provided by IFC was complemented by a range of activities that addressed some of the key challenges faced by domestic private sector such as access to credit.
- DFID, as one of the PIDG's principal donors, is encouraging the group to find new ways to mobilise investment in water and sanitation. The PIDG is not currently mandated to provide concessional finance, but is now considering engaging in 'Viability Gap Funding' (VGF) to target more difficult sectors such as water and sanitation. VGF aims to make infrastructure investment viable and attractive for the private sector through supplementary grant funding.
- The Global Programme for Output Based Aid (GPOBA) has provided OBA subsidies to 15 projects at a total of $54.9 million. These projects are targeted at geographical areas where the poorest are concentrated with 61% of the funding spent in Sub-Saharan Africa.
- The Community Led Infrastructure Finance Facility (CLIFF) has spent £1.8 m on specific WASH projects. These CLIFF grants have catalysed £16.9 m of private investment. All CLIFF projects include some WASH elements but only specific WASH projects are included here. These are all in urban India.
- The Public Private Infrastructure Advisory Facility (PPIAF) supports governments at the legislative and regulatory level. PPIAF has funded 111 projects in the water and sanitation sector since 1999 which have facilitated 28 transactions, helped create 38 reform strategies and created or strengthened 18 institutions. For example in Kosovo where, in late 2000, PPIAF made a grant of $158,000 to study options, develop a strategy, and build consensus to improve water supply and

sanitation services through private sector participation in the Gjakovic-Rajovec area. Based on PPIAF recommendations, a water concession law was passed and subsequently, the Gjakove and Rahovec Water Supply Management Contract was awarded. By 2007 service connections had increased by 42 percent, intermittent supply was replaced with 24-hour service benefiting over 200,000 people, and system losses were reduced by 24 percent.

- An innovative financing programme in Kenya brought together a number of these DFID funded initiative; WSP, PPIAF and GPOBA. The initiative built on the comparative advantage of each organization to provide combined technical assistance and finance. The aim of the project was to strengthen the existing operator's ability to expand the availability of safe, clean water at affordable prices. 30 community water providers are accessing finance and improving services through this innovative partnership with K-Rep Bank. Today K-Rep Bank has disbursed over $1 million to community groups, benefitting nearly 40,000 people.

VfM and results achieved in multilateral programmes

83. **The Multilateral Aid Review (MAR)[92] was commissioned to assess the value for money for UK aid of funding channeled through multilateral organisations (MOs), both in terms of their contribution to UK development objectives and their individual organisational strengths.** The review confirmed that the multilateral system is a critical complement to the UK government's bilateral programmes and that, together, MOs can mobilise large scale funding, bring specialist expertise, support innovation, play pivotal leadership roles with other donors, have the mandates and legitimacy to help to deal with conflict situations, and provide a platform for action in every country in the world. Forty-three organisations were assessed. Nine were deemed to offer 'very good' value for money, 16 'good' value for money, nine 'adequate' value for money, and nine 'poor' value for money for UK aid.

84. The MAR shows that a significant and growing proportion of UK aid is channeled through MOs with DFID contributing core funding through membership fees, capital contributions and additional un-earmarked funding. Chapter 3 outlines the proportion of DFID's WASH investment which flows via multilateral channels, both in terms of contributions to core funding and also bilateral contributions to MOs at country-level ("multi-bi"). **The majority of funding for WASH in DFID priority countries is via four organisations: the World Bank (IDA), the European Commission (EDF), the African Development Bank (AfDF), and the United Nationals Children's Fund (UNICEF).** In general terms the MAR considered IDA[93], EDF and UNICEF to provide 'very good' value for money and the AfDF to provide 'good' value for money. The following section considers in more detail the question of value for money in multilateral programmes from a WASH perspective. Obtaining information on results achieved and costs for MOs presents various challenges and the ease of doing so varies between MOs as discussed below. However, Table 20 below provides an overview of results for the four main MOs to which DFID WASH funding flows. Information on DFID's imputed spend through MOs can be found in Table 10, paragraph 50.

[92] Multilateral Aid Review: Ensuring maximum value for money for UK aid through multilateral organisations, March 2011.

[93] The MAR estimates that over the last 10 years IDA alone has provided 113 million people with an improved water supply.

Table 20: Illustrative results achieved by the four main Multilateral Organisations engaged in the WASH sector in low-income countries

Multilateral Organisation	Period	People provided with improved access (millions)
IDA	2008 - 2010	Water: 31 Sanitation: 1.6
UNICEF†	2010	Water: 19 Sanitation: 19 Hygiene promotion: 42
EC¥	2004 - 2009	Water: 31 Sanitation: 9.3
AfDB*	2008 - 2010	Water and Sanitation: 8.5*

†UNICEF's figures include humanitarian activities in 60 countries where it led or co-led the WASH cluster or similar coordination mechanism. DFID does not include support to humanitarian WASH interventions in its reporting because they are generally not sustainable in the long term. Representatives from UNICEF have confirmed that they aim to distinguish between humanitarian and development results in their next annual report.
¥ Note that in the MAR DFID identified deficiencies in EC reporting against results, and in particular how the results the EC reports relate to inputs from different EC institutions and modalities. DFID is in discussions with the EC over how to improve their reporting against results.
*The AfDB is not able to provide disaggregated figures for water and sanitation at this time.

The World Bank

85. The World Bank is among the largest financiers of WASH globally. In 2010/11 the World Bank Group (International Bank for Reconstruction and Development and International Development Association) invested over $7bn in the water sector, including over $4bn for water supply and sanitation. **Between 2007 and 2009 the International Development Association (IDA) was the largest multi-lateral donor in the WASH sector allocating an average of $785million per annum[94].** The Bank's approach is guided by the 2003 Water Resources Sector Strategy. A review of progress in 2010 (Sustaining Water for All in a Changing Climate) confirmed the relevance of the basic core principles in responding to a changing climate and noted the need for further mainstreaming of water projects within other sectors such as environment, agriculture and energy. It shows that annual commitments to water projects have increased significantly since 2003 from $1.3bn to $6.2bn and estimates that lending over the next 3 years will be between $21bn and $25 billion. This reflects the Bank's reengagement with infrastructure as a priority area and a new results framework has been developed to strengthen monitoring of strategy implementation to 2013.

Table 21: World Bank Lending to WSS by region (2004-2011) [95]

WSS	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
AFR	374.7058	290.2482	359.727	600.0606	437.5716	645.9731	483.8788	595.8051
EAP	388.6262	643.361	542.7897	516.2167	267.2492	998.045	843.4861	889.4515
ECA	90.40812	280.75	8.9	470.9439	474.045	230.19	668.4651	147.312
LCR	63.95	263.682	271.5633	432.4782	444.6922	2196.308	822.124	1045.637
MNA	321.5	352.897	94.367	190.7	311.7443	114.787	315.5118	414.9867
SAR	273.74	124.695	316.34	222.63	137.7656	140.31	1076.085	945.702
Grand Total	**1512.93**	**1955.633**	**1593.687**	**2433.029**	**2073.068**	**4325.614**	**4209.55**	**4038.895**

[94] OECD DAC Creditor Reporting System
[95] World Bank Business Warehouse

86. The Independent Evaluation Group (IEG) conducted an in-depth evaluation of World Bank Support to the Water Sector between 1997 and 2007 which shows steady improvement in the sector's performance. Within the portfolio, 77% of the 857 completed projects had an aggregate outcome rating of moderately satisfactory or better, slightly above the Bank-wide average of 75%. **In 2008 water sector projects attained a 90% satisfactory rate. However the evaluation called for greater attention to sanitation. It notes that connection targets for sanitation are often unmet, partly because willingness to pay has been overestimated and facilities have been overdesigned and due to weak institutional capacity and lack of political prioritisation.** It notes a declining emphasis on monitoring economic returns, water quality and health outcomes and recommends strengthening country systems for monitoring and reporting. It also highlights deficiencies in financing strategies with only 15% of projects meeting their cost recovery objectives and calls for a review of how services can be financed on a sustainable basis in resource constrained settings. Lastly it notes the need to better integrate water investments with other sectors and recommends focusing on countries that are not only water poor but economically poor and working with ministries of planning and finance to improve understanding of the economic benefits of investment in water and sanitation.

87. In response to the IEG report Bank Management asked Regions and the Water Anchor to examine financing of service delivery as part of public expenditure reviews (PERs), thereby adding to the key role these documents play in Bank analytical work. The World Bank develops PERs for individual countries, inclusive of all sectors; water is often a subsector of the infrastructure component. PERs can reveal important information about the reliability and consistency of funds budgeted for a sector, and can help evaluate the impact of the size and stability of revenues on a country's ability to achieve its goals. Such financial analysis can prove the case for much needed reform and influence long-term country strategies.

Box 13: World Bank approach to beneficiary assessment

World Bank and IDA investments are guided by 2003 Water Resources Sector Strategy. Following the 2007 IEG evaluation the Bank has been refining its core indicators for WSS which are used systematically across all programmes to track both direct and indirect beneficiaries[96]. The Bank recently conducted an assessment of expected beneficiaries for all WSS projects approved in FY2010 under its two main lending arms (IBRD and IDA). This showed that 41 projects expected to provide 23.2 million people with access to improved water source and 9.9 million with improved sanitation. Indirect beneficiaries from project support to utilities would benefit over 30.5 million people. It also conducted an assessment of actual numbers of beneficiaries from projects completed in FY2010 as compared with projected targets[97].

The resulting discussion paper highlights some of the technical difficulties in calculating beneficiary numbers from figures contained in project documents. For example, unless otherwise indicated, the authors assume that an improved water point serves an average of 250 people while new and rehabilitated piped household water supply connections and new sewer connections and improved latrines each serve an average of 5 people. Indirect beneficiaries include those populations covered by utilities supported through institutional strengthening, more efficient financial and operational management, and improvement in non-revenue water and cost recovery. Also included are other water service providers supported such as village water committees.

It also highlights areas for improvement in existing reporting procedures. For example 9 out of 33 projects analysed did not define beneficiaries at appraisal stage and only one out of 9 quantified beneficiaries at project completion. Reasons include the fact that many projects are demand based so difficult to predict uptake, the fact that interventions focus on improving institutional capacity or creating an enabling environment, or that WASH was a component of large programme which did not disaggregate total beneficiary figures e.g. Nigerian Community Based Poverty Reduction project.

[96] See note http://go.worldbank.org/4XIW0QK6L0

[97] Note that WB OPCS WSS Sector Codes include solid waste management and flood protection in addition to water supply and sanitation. Includes discussion of constraints and limitations

- 25 projects out of 33 completed in 2010 had sufficient information for analysis. Total lending was about $1.44bn of which IBRD loans totalling $935m provided 3.4m people with access to water and 3.1m people with access to sanitation, and IDA loans totalling $558m provided 9.9m people with access to water and 7.5m people with access to sanitation. This combined total number of beneficiaries (13.3 million with improved water and 10.7m with improved sanitation) compares favourably with projected direct beneficiary numbers of 11.7m and 9.5m with actual outcomes exceeding projected outcomes by 13% for water and by 12% for sanitation. Data on utility coverage suggests that over 14m people have indirectly benefited form projects completed in FY2010.
- However only 7 out of 25 projects analysed (28%) included poverty related indicators in their results matrices (e.g. water and sanitation coverage in low income peri-urban areas, increase in % subsidies granted that are targeted to low income hhs). This is a weakness that the Bank is committed to addressing.
- The Bank is committed to continuous improvement in the way in which it reports results. It disaggregates water and sanitation but does not disaggregate rural and urban. It includes poverty indicators but these are currently not applied systematically. The latter is particularly important for IDA. The Water and Sanitation Programme (WSP) is leading on developing methods and tools for monitoring the results of policy dialogue and institutional development which are essential to WASH sector system strengthening.

88. The priorities outlined in World Bank policies and strategies are broadly consistent with those of DFID including a strong commitment to meeting the MDGs, with particular emphasis on the sanitation target, growing interest in environment and climate issues, ongoing commitment to promoting gender equality, and an increasing focus of support in the poorest countries including fragile states. The MAR ranked IDA highly as one of the top MOs for spending aid where it is needed most with robust systems in place for project management and a strong commitment to evaluation. However it also notes that the World Bank has a smaller presence, and weaker performance, in fragile states, that projects have limited flexibility to respond to changing circumstances and that internal incentives tend to be tilted towards inputs – project and loan approvals - rather than results. **Enhancing the poverty focus and integration of gender issues in Bank operations remains a central focus of DFID's policy dialogue with the Bank**.

89. DFID is a major contributor to the World Bank IDA and currently accounts for 11.1% of total funds available to IDA. **Between 2008 and 2010 IDA report providing 31m people with access to clean drinking water, and 1.6m with access to improved sanitation facilities**. Looking forward, between 2010 and 2015 IDA expects to provide a further 36m with water, and 1.8m with sanitation[98].

The European Commission

90. **The EU is one of the world's biggest donors to the WASH sector. EU water and sanitation programmes amount to almost €400m per year in over 30 countries worldwide.[99]** The MAR notes that EU multilateral aid can provide scale and reach that many national aid programmes cannot, it brings a range of policies to the table including trade, defence and security together with aid and provides influence in many ACP countries which do not have an obvious link to the UK. It also notes that the influence of even the largest member states is likely to decrease over time and so working collectively makes sense in order to maximise our influence in a rapidly changing international development landscape.

91. Like DFID, the European Commission aims to provide an integrated approach to issues relating to water and sanitation, based on three priorities:
    - Providing access to safe drinking-water and adequate sanitation to all people to reduce poverty, improve public health and increase livelihood opportunities.

[98] IDA 16 Results Measurement System
[99] Press Pack: Making a splash: EU work on water and sanitation

- Establishing and strengthening organisations and infrastructure for the sustainable and equitable management of transboundary rivers, lakes and groundwater.
- Coordinating the equitable, sustainable and appropriate distribution of water between various users.

92. **The EC responds to these priorities by combining political processes and complementary financial instruments to support governments to meet the water and sanitation crisis.** The first three are directly relevant to delivering the WASH MDGs:
    - *The European Water Initiative:* political dialogue with governments and civil society on how to achieve the MDG targets.
    - *Support for national and regional programmes*: in partner countries.
    - *The ACP-EU Water Facility:* the first Water Facility (2004-2009) provided €500 million. The second WF (2010-2015) is expected to provide €200 million. The reporting of the EU Water Facility is more detailed and more readily available than the reports for other facilities and the various country programmes.
    - *The EU-Africa Partnership for Infrastructures:* to support trans-boundary programmes.

93. The Water and Energy Facility Unit of the EC presented results and lessons learned from the first Water and Energy Facilities in February 2009. €500 million was provided for the first Water Facility for calls for proposals. In response to the call, 1,288 proposals were received from which 175 projects were approved to the value of €780 million of which €415 million was provided by the EC. 45 projects to the value of €64.4 million were under component A for the improvement in the management and governance of water; 24 projects to the value of €180.6 million were under component B for water and sanitation infrastructure; and 106 projects to the value of €169.5 million were under component C for civil society and decentralised cooperation initiatives. Of the 175 projects 156 were in Africa. **At the time of the report the EC estimated that EUWF projects would result in 14 million people gaining access to safe water, with 3 million from this figure also gaining access to adequate sanitation and 11 million benefiting from hygiene promotion.**

94. The UK is a major contributor to the EU and currently accounts for 14.7% of the EU multilateral aid budget. **The EC report that between 2004 and 2009 they provided 31m people with improved drinking water and 9.3m people with improved sanitation facilities**. Following a recent Council resolution the EU is developing a new water policy and is in the process of reviewing the effectiveness of the EUWI and developing more systematic and transparent mechanisms for reporting and aggregating results achieved by the various different instruments. The UK has a role to play in shaping future EU development policy on WASH and emerging reporting frameworks.

UNICEF

95. **UNICEF invests more money in WASH than any other UN agency, although much of this is from bilateral donors that uses UNICEF to implement programmes. Total expenditure in 2010 was $393 million. UNICEF has 60 priority countries for WASH and has a presence in each of the 27 DFID priority countries[100].** UNICEF policy on WASH is closely aligned with DFID's own policies and guidelines and has a focus on poverty, gender and equity issues and the contribution of WASH towards wider improvements in maternal and child health and welfare. UNICEF is also a major supporter and promoter of the Sanitation and Water for All initiative, jointly hosting the first SWA High Level Meeting in April 2010.

96. The 2010 annual report sets out in detail the work UNICEF is undertaking around the world. It is important to note that UNICEF's WASH work includes humanitarian activities

[100] UNICEF Annual Report (2010)

in 60 countries where it led or co-led the WASH cluster or similar coordination mechanism. UNICEF also led a 'Call to Action for WASH in Schools' and has been a driving force behind recent efforts to scale up school WASH programmes. UNICEF has also increasingly focused on Community Approaches to Total Sanitation (CATS) that is proving to be a cost-effective way to increase access to adequate sanitation.

Table 22: Estimated beneficiaries from UNICEF WASH programmes, 2010

Table 3: ESTIMATED beneficiaries from UNICEF-supported community and school WASH programmes, 2010 (emergency and development)[10]

Households gaining access to an improved drinking water source, associated with the work of UNICEF	3.8 million households (approx. 19 million people)
Households gaining access to an improved sanitation facility, associated with the work of UNICEF	2.4 million households (approx. 12 million people)
Households with new sanitation facilities through community approaches to total sanitation (CATS) programmes supported by UNICEF	1.4 million households (approx. 7 million people)
People reached with interventions to promote handwashing with soap – through direct promotion activities with communities, supported by UNICEF	42 million people
Estimated population reached with interventions to promote handwashing with soap – through mass media, campaigns, etc., supported by UNICEF	457 million people
People reached with household water treatment initiatives with support by UNICEF	Chlorine-based: 22 million people Household filters: 213,000 people
Children in schools at which WASH facilities have been installed, with UNICEF support	2.6 million children
Number of Schools at which WASH facilities have been installed, with UNICEF support	9,400 schools

Assumptions and Notes:

- Service standards (e.g., number of people per water point) and water sustainability and quality standards vary significantly from place to place.
- The level of UNICEF contribution to systems also varies significantly from country to country, from project to project and even from year to year.
- School water points often serve the host community as well as the school.
- There is no distinction made between rehabilitated and newly constructed water supply facilities in these tables. Beneficiaries from rehabilitated systems are counted because they represent people who – at least for some period of time – have not had access to improved water supplies, but now do.
- The figures include some but not all emergency water and sanitation systems and services. Some emergency systems are temporary, others are more permanent.
- There is not yet a standardized methodology for accounting for beneficiaries within CATS programmes.

[10] UNICEF changed the methodology for estimating WASH beneficiaries in 2010 in accordance with new methodologies for the organization as a whole. Consequently it is not possible to directly compare beneficiary numbers from this year to previous years.

97. UNICEF WASH programme reporting has historically been highly decentralised but the **2010 annual report is the first comprehensive attempt to provide an estimate of the aggregate number of beneficiaries from UNICEF supported community and school WASH programmes.** It provides a detailed breakdown of results achieved using a new standardised methodology for estimating beneficiaries (Table 22). Unlike many other agencies UNICEF is able to provide disaggregated data for water, sanitation and hygiene. It also reports separately on beneficiaries from household water treatment and on school WASH initiatives[101]. However it is important to note that the UNICEF figures include both developmental and emergency WASH interventions. Support to humanitarian WASH interventions is not included in DFID's own reporting of WASH results because they are generally not sustainable in the long term. Unicef aims to distinguish between humanitarian and development results in their next annual report.

[101] DFID does not currently provide disaggregated results for school WASH programmes funded by the education sector.

98. The UK currently accounts for 3.4% of UNICEF's aid budget. UNICEF reports beneficiary numbers of 19 million for water, 19 million for sanitation and 42 million for hygiene promotion for 2010.

African Development Bank

99. AfDB is one of the largest donors to WASH in Africa. **The Rural Water Supply and Sanitation Initiative (RWSSI), launched in 2003, aims to reduce poverty and address urban-rural disparities by 'accelerating access to improved rural water supply and sanitation (WSS) facilities from a baseline of 47% and 44% respectively in the year 2000 to 80% by the year 2015 in a sustainable manner'.** AfDB established the RWSSI Trust Fund (RWSSI-TF) in 2006 and it has so far attracted contributions totalling €91.1 million (from France, Denmark, Netherlands, Canada and Switzerland). The RWSSI 2010 annual report reports that the total approximated financing for RWSSI is €2.94 billion of which the African Development Fund contributed €885.3 million and the RWSSI-TF €86.4 million. This implies that RWSSI programmes/ projects leveraged €1.97 billion from other development partners and African governments for financing of rural water supply and sanitation. As of 31st December 2010 RWSSI had approved 28 projects and programmes in 22 African countries.

Figure 28: AfDB financing for Water Supply and Sanitation

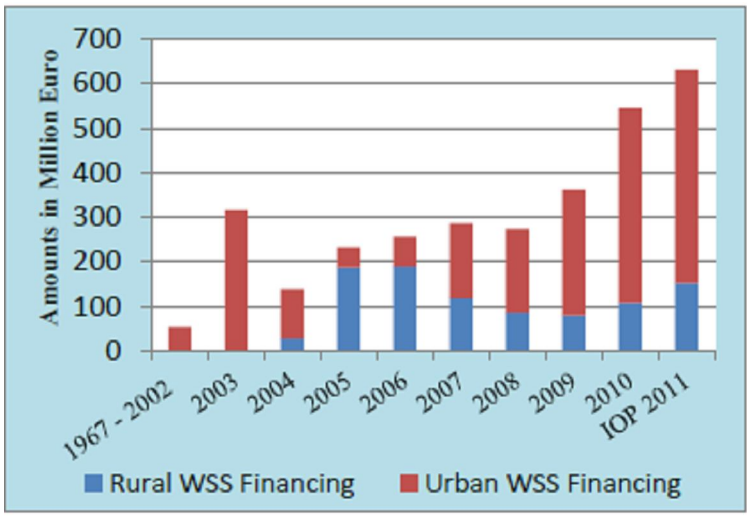


Figure 2: Annual WSS Financing at AfDB (UA)

100. The 2010 annual report notes that while water supply and sanitation funding by the Bank has increased tenfold in the last seven years, from an average of €54 million between 1967 and 2002 to about €538 million in 2010, funding for rural water supply and sanitation has seen a significant decrease since peaking in 2006, hitting a low in 2009, then increasing slightly again in 2010 (Figure 28). The report calls for continued effort in raising the profile of rural water supply and sanitation within the Bank, in Regional Member Countries (RMCs), donors and regional actors. RWSSI approved financing for projects totalling €106.89 million in 2010, of which €84.68 million came from ADF and €22.21 million from the RWSSI Trust Fund. The annual report does not include disaggregate reporting of results attributable to AfDB and RWSSI-TF financing but notes that in the 22 RWSSI countries access to potable water supply increased from 25 million people at December 2009 to 33 million people at December 2010, while access to improved sanitation increased from 17 million to about 20 million people during the same period.

101. DFID supports AfDB investment in WASH indirectly via support to the African Water Facility and the African Development Fund. The former contributes technical assistance towards the preparation of RWSSI projects and programmes while the latter helps

finance the costs of WASH programmes. DFID contributions amount to 9.2% of the funding available to AfDB. **In the AfDB's *'Annual Development Effectiveness Review 2011'* (the first time such a document has been produced by AfDB) the Bank reports that in the period 2008-2010, their work provided 8.5 million people with new or improved access to water and sanitation**[102].

VfM and results achieved through policy and influencing

102. **DFID is not only concerned with improving the value for money provided by its own investments but also aims to increase VfM of all WASH aid**. Policy and influencing work at national and international levels provides leverage over other donors (including multi-lateral partners which account for large proportion of DFID WASH spend) and recipient governments. Interviews with other donors and development partners suggest that DFID's policy and research activities are widely regarded as having significantly influenced WASH sector development over the past 10 years.

Box 14: DFID Policy Division's Mission

Policy Division's **mission** is to produce the best analysis, knowledge and ideas, to shape and deliver DFID, the UK and the world's approach to sustainable poverty reduction. Policy Division provides leadership on international development policy and strategy. We harness the best thinkers, the best ideas, the best evidence, and the best analysis, to shape DFID, UK and global resources and institutions in support of poverty reduction. We have around 200 staff, a programme budget of about £500m a year, and deploy all of the instruments at our disposal: policy, knowledge, relationships, people and money.

103. **The evidence suggests that investment in policy and influencing represents good value for money but it is difficult to attribute results.** Ambitious goals on scaling up WSS services can only be achieved when supported by a number of 'enabling' factors, including research and development (R&D). It is widely recognised that investment in R&D is behind the major gains in general productivity, competitiveness and growth in economic sectors. This is also true for the WSS sector. DFID recently commissioned a review of returns to investment in knowledge and innovation which found that 'research and innovation are fundamental to many of these 'enabling' factors, covering policy development; resource mobilization and resource allocation; service delivery via programs and projects and via the private sector; resilience to climate change; and finally, monitoring and evaluation of service coverage and development outcomes'[103]. The study concludes that **it is difficult to quantify the impact of investments on specific populations but there is evidence that high quality and targeted support can influence decision making which in turn has significant impacts on those populations**.

Box 15: Assessment of value for money from research and policy support (WSP)

Quantitative assessment of gains from research and policy support is complicated but has been attempted by the WSP TSSM programme in India, under the Global Scaling Up Project funded in large part by the BMGF. The WSP has spent until June 2010 US$1.9 million in two states – Himachel Pradesh (HP) and Madya Pradesh. In HP the programme has been supported by State government spending of US$7 million and household spending of US$18.8 million. If the WSP expenditure is assumed to be split equally between the two States, it is estimated that 1 Dollar of WSP spending has leveraged 7 Dollars from the State and almost 20 Dollars from the population. The average cost per person – for a claimed[104] 3 million people with improved access – is US$9, which equates with roughly

[102] AfDB is currently conducting an assessment of results achieved from its investment in WASH since 2003. The aim is to separate results by spending modality (ADF, ADB and RWSSI) and disaggregate beneficiaries by rural/urban and by water and sanitation. It also includes data on unit costs. The report was not yet available at the time of this review.

[103] Hutton, G (2011) Economic benefits of supporting deployment of global knowledge and innovation for the delivery of water and sanitation services. Dewpoint enquiry no. A0420

[104] Until June 2010, there were 876,000 people verified as ODF and 2,148,380 people claimed but not yet verified as ODF.

US$ 45 per latrine. This project involved sanitation marketing at community level, as well as actions to improve the enabling environment at district, State and national levels. Given the degree of leverage achieved, the project represents good value-for-money.

WSP is developing its capacity to calculate quantitative results. A leverage ratio of 48 was calculated for WSPs work in rural Ethiopia using the following assumption: From 2010 to 2015, a further 32.2 million rural dwellers in Ethiopia should gain access to sanitation to meet the MDG target. Cost per person covered per year has been estimated at US$ 10, from a Plan International estimate made in 2008, cited at 2010 prices. This gives a 5-year cost of US$ 1.6 billion to reach the MDG target. The WSP budget for this period is US$ 8.4 million. If it is assumed that WSP's contribution to the enabling environment is 25% of all contributions (taking into account the efforts and spending of other external partners and the Ethiopian government itself); and it is assumed that in the five year period Ethiopia succeeds in meeting its rural sanitation MDG target. This yields a leverage ratio of 48, i.e. for every US$1 spent by WSP on the enabling environment, US$48 is actually spent on rural sanitation improvement. While this quantitative example requires major assumptions (as listed), it does illustrate the potential returns on investing in the enabling environment generally, and WSP's contribution specifically. Similar exercises carried out for Mozambique and Zambia find leverage values of 36 and 25, respectively. For Bangladesh, the leverage is higher at 140 (covering both rural and urban areas, and both water and sanitation).

104. **In 2010/11 Policy and International Programmes spent £11.1m on policy and influencing activities related to WASH.** The Water and Sanitation Policy Team provides core support to: the Water and Sanitation Programme; the UN Water Supply and Sanitation Collaborative Council; UN Water; two key sector monitoring tools - the WHO/UNICEF Joint Monitoring Programme (JMP) and GLAAS); the Sanitation and Water for All secretariat hosted by UNICEF; as well as a number of smaller accountable grants for research (e.g. analysis of human resource capacity gaps and political economy of WASH) and Civil Society Organisations (e.g. the Fresh Water Action Network). Assessing value for money of these investments is complex and quantitative assessments of the type attempted by WSP (Box 15) are rarely undertaken. The review nevertheless found **evidence that DFID's support to international policy processes is contributing to reforms that are helping to increase value for money of aid to WASH as a whole**.

105. Stakeholders interviewed for the WASH PR suggest that **DFID policy team has played a decisive role in establishing and strengthening initiatives designed to improve the global architecture for WASH in terms of: enhanced coordination; better information collection, dissemination and reporting leading to better targeted investment**. DFID provides support to UN-WATER to ensure a more coordinated and effective response to global WASH needs from UN agencies. It was also a prime mover behind the Sanitation and Water for All (SWA) initiative which established twice yearly High Level Meetings between countries which are off-track for achieving the MDG targets and major WASH donors and civil society representatives (Box 16). SWA is directly informed by the Global Analysis and Assessment of Sanitation and Drinking Water (GLAAS) established in 2010 to gather data on: finance, human resources and the policy environment. This in turn complements the WHO/UNICEF Joint Monitoring Programme which is more focussed on international progress towards MDG targets in the context of sustainability, safety and equity.

Box 16: Sanitation and Water for All: A Global Framework for Action

Sanitation and Water for All (SWA) aims to improve the results-focus and accountability of the water and sanitation sector globally. It aims to tackle key blockages in the water and sanitation sector such as insufficient political prioritisation, weak sector capacity to develop and implement effective plans and strategies, and uncoordinated and inadequate investments. SWA plans to achieve this through:

- Hosting a bi-annual High Level Meeting of global decision-makers to take decisions on key water and sanitation issues;
- Improving mutual accountability for delivery on sector commitments;
- Supporting the UN-Water GLAAS Report as a way to improve evidence-based decision-making; and

- Providing technical assistance to developing countries to develop credible plans.

DFID had a pivotal role in establishing SWA in collaboration with the Dutch government. In 2006 the Human Development Report (HDR) focused on water and sanitation, clearly setting out the challenges faced in meeting the MDG targets for water and sanitation. One key recommendation of the report was a global action plan for water and sanitation alongside national frameworks to plan, coordinate and monitor service delivery. DFID responded to the HDR with a Call to Global Action on water and sanitation: in essence DFID called for greater financial investment in the water and sanitation sector; ensuring that this money is spent fairly and effectively; and that the right structures are put in place to make faster progress in increasing access to safe drinking water and basic sanitation. DFID suggested this could be achieved with the 'five ones': one annual report, one annual meeting, one national plan, one national coordinating group and one UN body at the national level working on water and sanitation.

In May 2007 the International Development Select Committee produced its report into DFID's work in sanitation and water and commended DFID's Call to Global Action. The call for global action and the framework of the 'five ones' gained strong support from civil society including the End Water Poverty coalition (including Wateraid, Tearfund, Save the Children, UNICEF UK and others), who began a campaign for a global framework for action in 2007. This framework was intended to tackle the weak international response to the lack of access to clean water and basic sanitation.

In September 2008 a Global Framework for Action (which later became Sanitation and Water for All*: A Global Framework for Action*) was announced by the Parliamentary Under-Secretary of State at the United Nations Millennium Development Goals High-Level Event on behalf of the UK and the Netherlands. The Minister pledged support for an annual high level meeting; an annual report; and the development and implementation of up to 20 national water and sanitation plans.

DFID officials subsequently worked with the Netherlands in building a coalition of UN agencies, the World Bank, African institutions and Ministers of Finance and Water, bilateral donors and international civil society. In 2010 these efforts culminated in the first ever high-level meeting of developing country finance ministers and donor representatives, senior staff of regional development banks, private sector and civil society, hosted by UNICEF during the World Bank spring meetings.

The meeting called for improved targeting of global WASH investments and led to concrete commitments relating to (i) resource allocation by developing countries to WASH; (ii) developing credible national plans and improving monitoring; (iii) coordinating donor support to the most off-track countries. Progress and results achieved will be reported at the next HLM in April 2012.

106. The International Financial Institutions Department (IFID) manages DFID's support to private sector involved in WASH including Water Services for the Urban Poor (WSUP), the Private Infrastructure Development Group (PIDG), the Global Programme for Output Based Aid (GPOBA) and WSP's Sustainable Services through Domestic Private Sector Providers (SS-DPSP). The review found that reporting of results achieved through these projects tends to focus more on levels of investment they attract than on the numbers of people who benefit from that investment. This is partly because much of the investment has been in system strengthening (e.g. technical capacity building or developing sustainable investment plans) rather than direct service delivery. However DFID has been successful in increasing the proportion of funds invested in poor countries and low income areas (e.g. DFID grant to SNTA under PIDG is conditional on 50% going to LICs, GPOBA projects in MICs are focused in peri-urban and low income areas). **Interviews with other WASH sector stakeholders suggest that DFID is widely regarded as having been at the leading edge of pioneering new approaches to output based aid and promoting a focus on pro-poor results**

Chapter 5. Optimising the impact of DFID spending

Targeting investment where it is needed most

107. **DFID's future plans are focused on numbers of people served**. In 2011 DFID published Operational Plans (OPs) mapping out the results UK aid will achieve over the next four years in every country where DFID works as well as in policy and research divisions. The plans follow a series of comprehensive aid reviews (bilateral, multilateral and humanitarian) that aimed to ensure Britain's aid budget is as focused and effective as possible. Sixteen country plans, one regional, and three policy departments included indicative WASH results and indicative budgets. Table 23 provides an indicative summary of the WASH offers received during the BAR.

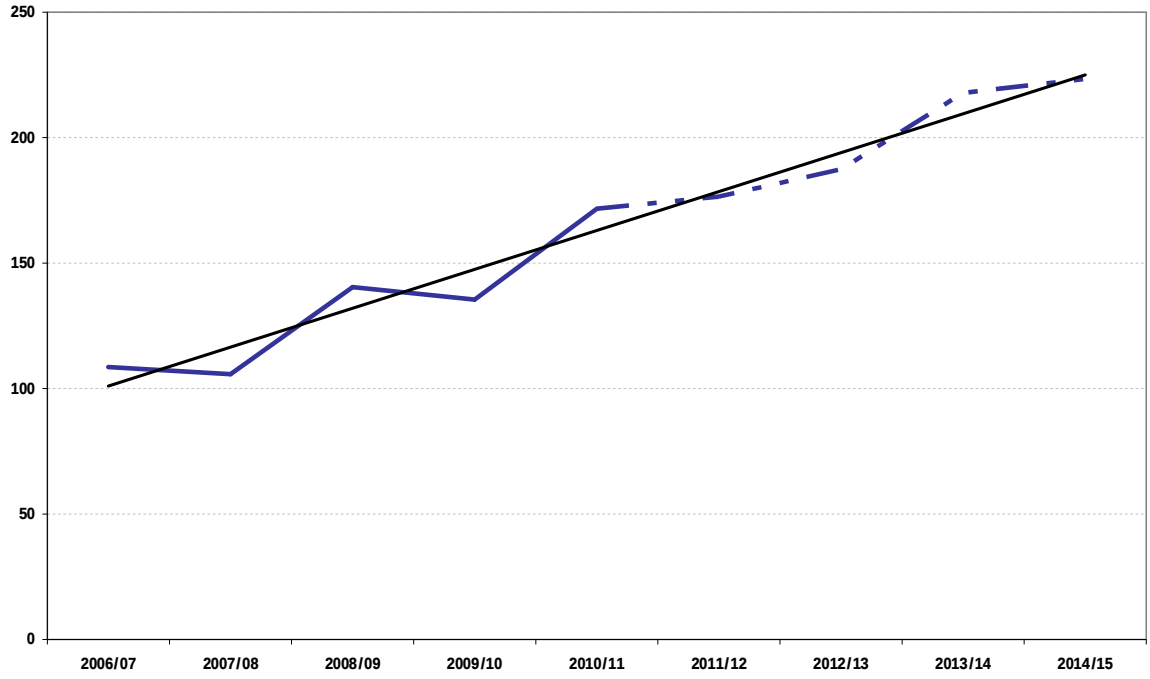
Table 23: Summary of WASH results in Operational Plans, 2011-2014[105]

Country Office	Number of people with sustainable access to clean drinking water sources through DFID support		Number of people with sustainable access to an improved sanitation facility as a result of DFID support		Number of people reached through hygiene promotion activities through DFID support		Costs (£)	
	Total over SR period	of which women, girls	Total over SR period	of which women, girls	Total over SR period	of which women, girls	Total over SR period (million)	WASH as % OP total
Bangladesh	1,278,003		613,182		3,623,263		23.00	2.30
DRC	Figures under revision							
Ethiopia	1,400,000		604,000		1,600,000		59.80	4.50
India	1,400,000	700,000	5,810,000	2,905,000	7,420,000	3,710,000	54.00	6.30
Malawi	800,000	411,000	800,000	411,000	1,000,000		22.82	
Mozambique	504,000	266,000	364,000	196,000			31.00	9.10
Nepal	240,000	130,000	110,000	60,500	195,000	105,000	4.00	1.20
Nigeria	2,900,000	1,450,000	3,800,000	1,900,000	5,500,000	2,750,000	58.87	5.90
Sierra Leone	1,194,000		1,508,300	769,300	2,637,600	1,292,400	50.50	18.70
South Sudan	800,000						25.00	6.70
Tanzania	405,000						39.00	
Uganda	30,000						1.73	0.40
Vietnam & Cambodia			325,000	164,450			5.96	8.50
Zambia	230,800		3,000,000	1,530,000	3,000,000	1,530,000	19.00	8.10
Zimbabwe	1,055,000		598,000		920,000		32.00	9.10

[105] NB these figures are indicative only and may change following the development of more detailed business cases.

108. **DFID's future plans include significant spending on WASH but the share of UK aid going to WASH is projected to remain the same[106].** Figure 29 gives an indication of likely total spending on WASH to 2015 based on existing Operational Plans. Current rates of multilateral spend to WASH have been used to estimate forward imputed multilateral aid, and 75% of total bilateral water spend identified in the OPs is to be directed to WASH (the average rate 2006/07 to 2010/11). Multilateral spending is likely to increase as total spending increases so these estimates are therefore likely to underestimate the actual level of financial support through MOs. WASH in 2014/15 would be about £223m (in 2010/11 WASH spend is estimated to be about £170m). This is a 32% increase over the spending review period. While there is an upward trend, the share of total DFID resources going to WASH is clear. **WASH spend as a percentage of total DFID spend was estimated to be 2.2% over the last 5 years, and 2.3% in 2010/11. It is estimated that in 2014/15 it will be closer to 2.0%.**

Figure 29: Total indicative spending on WASH from Operational Plans and aid reviews (£m)



£ million	2011/12	2012/13	2013/14	2014/15
WASH spend	177	187	218	223

109. **DFID's future spend will be concentrated in a smaller number of large programmes.** Table 24 and Table 25 show DFID's projected future spending for 2011/12 (outlined in the 2011-2015 Operational Plans) in relation to the global top 20 countries in terms of absolute numbers of people living without access to sanitation and water respectively. DFID is planning WASH programmes in 3 of the top 5 for sanitation (DFID does not have a programme in Indonesia and is closing its office in China). DFID is planning programmes in 12 of the global top 20 for sanitation and 10 of the global top 20 for water. DFID does not currently have programmes in Brazil, Myanmar, Madagascar, Niger or the Philippines and so needs to work with other donors to ensure that these countries are not neglected. Planned spending in Pakistan appears low relative to sanitation needs and there is currently no spending planned in Kenya, Ghana or Afghanistan despite high need in those countries.

[106] DFID has also developed strategies to optimise results achieved through its spend, as discussed later in this section.

Table 24: Sanitation needs vs DFID projected spend

	Projected 11/12	DFID Country Programme	Global Top 20	People w/out sanitation	(% access)
1	26,400,000	Ethiopia	India	818445910	31
2	10,500,000	India	China	607335170	55
3	10,400,000	Sierra Leone	Indonesia	109169080	52
4	10,000,000	Congo, Dem Rep	Nigeria	103023260	32
5	8,000,000	Zimbabwe	Pakistan	98157120	45
6	8,000,000	Mozambique	Bangladesh	75067130	53
7	7,571,000	Nigeria	Ethiopia	71388440	12
8	7,000,000	Sudan	Congo, Dem. Rep.	49477640	23
9	6,000,000	Bangladesh	Brazil	38693510	80
10	6,000,000	Tanzania	Tanzania	32371930	24
11	3,000,000	Zambia	Sudan	27253720	34
12	2,580,000	Malawi	Kenya	26777310	31
13	2,500,000	Liberia	Viet Nam	22197910	75
14	1,600,000	Vietnam	Philippines	21550440	76
15	1,000,000	Nepal	Ghana	20431930	13
16	1,000,000	Pakistan	Nepal	19841530	31
17	600,000	Uganda	Mozambique	18682540	17
18	0	China	Afghanistan	17087330	37
19	0	Kenya	Madagascar	16917940	11
20	0	Ghana	Uganda	16595870	48
	0	Afghanistan	Malawi = 42	6551180	56
			Zimbabwe = 44	6968880	44
			Sierra Leone = 48	4848850	13
			Rwanda = 51	4462690	54
			Liberia = 56	3162390	17

Table 25: Water needs vs DFID projected spend

	Projected 2011/12	DFID Country Programme[107]	Global top 20	people without water	(% access)
1	26,400,000	Ethiopia	China	148407000	89
2	10,500,000	India	India	147255000	88
3	10,400,000	Sierra Leone	Nigeria	63573000	58
4	10,000,000	Congo, Dem Rep	Ethiopia	49895000	38
5	8,000,000	Zimbabwe	Indonesia	44834000	80
6	8,000,000	Mozambique	Congo, Dem. Rep.	34933000	54
7	7,571,000	Nigeria	Bangladesh	32168000	80
8	7,000,000	Sudan	Tanzania	19579000	54
9	6,000,000	Bangladesh	Pakistan	17892000	90
10	6,000,000	Tanzania	Sudan	17690000	57
11	3,000,000	Zambia	Kenya	16017000	59
12	2,580,000	Malawi	Myanmar	14396000	71
13	2,500,000	Liberia	Afghanistan	14052000	48
14	1,600,000	Vietnam	Mozambique	11931000	47
15	1,000,000	Nepal	Madagascar	11204000	41
16	1,000,000	Pakistan	Uganda	10289000	67
17	600,000	Uganda	Angola	8924000	50
18	0	China	Yemen	8802000	62
19	0	Kenya	Philippines	8223000	91
20	0	Afghanistan	Niger	7589000	48
	0	Yemen	Nepal = 42	3448000	88
	0	Niger	Rwanda = 44	3427000	65
			Malawi = 45	2913000	80
			Sierra Leone = 47	2857000	49
			Zim = 53	2235000	82
			Liberia = 64	1221000	68

110. **DFID is planning WASH programmes in 15 of the 26 countries where it has health programmes.** Given the impact of WASH on health discussed in Chapter 2 it is important to consider how far DFID's projected WASH investments support planned investments in health. Table 26 below shows the correlation between planned health programmes and planned WASH programmes. It shows that while DFID is planning health programmes in 26 out of 27 countries, only 15 of these are also planning WASH programmes. In the 11 countries where DFID is planning health programmes but not WASH programmes it will be important, from a value for money perspective, to ensure that government and other donors are investing in WASH in order to maximise the marginal benefits of DFID's investment in health.

[107] Does not include regional and non-specific spend

Table 26: DFID Health programmes and WASH programmes 2011-14

DFID Programmes	Health programmes	WASH programmes	Health without WASH
Africa Regional	Africa Regional		Africa Regional
Asia Regional	Asia Regional		Asia Regional
Bangladesh	Bangladesh	Bangladesh	
Burma	Burma		Burma
Central Asia	Central Asia	Central Asia	
Caribbean			
DRC	DRC	DRC	
Ethiopia	Ethiopia	Ethiopia	
Ghana	Ghana		Ghana
India	India	India	
Kenya	Kenya		Kenya
Liberia	Liberia		Liberia
Malawi	Malawi	Malawi	
Mozambique	Mozambique	Mozambique	
Nepal	Nepal	Nepal	
Nigeria	Nigeria	Nigeria	
OPTs	OPTs		OPTs
Pakistan	Pakistan		Pakistan
Rwanda	Rwanda		Rwanda
Sierra Leone	Sierra Leone	Sierra Leone	
Somalia	Somalia		Somalia
South Africa	South Africa		South Africa
Sudan	Sudan	Sudan	
Tanzania	Tanzania	Tanzania	
Uganda	Uganda	Uganda	
Zambia	Zambia	Zambia	
Zimbabwe	Zimbabwe	Zimbabwe	
Total	**26**	**15**	**11**

111. **DFID's overall financial contribution is smaller than other major donors** (Table 27). The average spend on WASH amongst DAC donors is 6.2%, while DFID spend is around 1.4% (using standardised DAC reporting codes). As noted in Chapter 3, while DFID investment in WASH has increased steadily over the past 5 years, the share of the DFID budget allocated to WASH has remained constant.

Table 27: Top 10 DAC Donors % ODA allocation by sector (OECD 2009 disbursements)

Country	Education	Health	WASH	Total ODA
US	4	3.7	1.6	25992
Japan	5.3	2	18.9	12895
France	19.2	1.5	8.8	8430
Germany	19.1	3.6	8.7	8360
UK	**8.9**	**7.8**	**1.4**	**7710**
Netherlands	4.2	2.7	3.7	4957
Spain	7.1	6.2	12.7	4740
Canada	15.4	15.2	2	3182
Norway	8.6	6.2	1.3	3168
Sweden	3.1	3.5	2.5	3028
DAC Donors	8.8	4.6	6.2	
EU Institutions	8	3.2	3.3	

Enhancing efficiency and effectiveness

112. DFID's approach paper on value for money builds on the Audit Commission definition of VfM as the relationship between economy, efficiency and effectiveness. Organisations achieve good value for money when they successfully balance all three (i.e. with low costs, high productivity and successful outcomes). In examining value for money there is a tendency to focus on economy and efficiency, as these tend to be easier to measure. Effectiveness is less easy to measure but no less important. While it is often relatively easy to reduce costs, if this reduces effectiveness then that may not be desirable. The

Literature Review summarised in Chapter 2 highlights three further considerations when assessing the effectiveness of WASH interventions: safety (do they deliver intended health benefits), equity (do they benefit those who need them most), and sustainability (do they deliver lasting benefits).

113. *Economy* is about acquiring resources in appropriate quality and quantity at the lowest cost. DFID is currently supporting research to better understand human resources capacity needs within the WASH sector[108]. It is expected that these studies will help to inform more economical deployment of existing human resources and guide future donor and government capacity building strategies. The review has also highlighted the need for greater attention to unit costs and drivers noting that **the current lack of detailed information relating to the costs of providing and sustaining WASH services over time is a constraint to improving value for money in WASH investments**. This is an acknowledged problem within the sector and needs to be addressed in collaboration with other development partners. DFID is well placed to spearhead initiatives to improve benchmarking of data on the lifecycle costs of providing sustainable water and sanitation services and to promote increased transparency of sector financial reporting by recipient governments and donors. In order to effectively lead by example DFID also needs to continue to improve its own internal procedures[109] and guidelines for tracking and reporting VfM in WASH programmes (Box 17).

Box 17: Improving VfM in our WASH programmes through improved monitoring and evaluation

1. Benchmarking input and output costs
2. Calculating and comparing beneficiary numbers from different data sources
3. Calculating indirect beneficiaries from system strengthening
4. Devising indicators for monitoring sustainability
5. Estimating the contribution of WASH investment to outcomes in other sectors

114. *Efficiency* is about maximising delivery with the least possible use of resources. A key lesson from experience highlighted by the review is the importance of getting the right balance between our direct investment in improving access and our investment in 'system strengthening' to ensure that all investments in the WASH sector are used efficiently and effectively. **DFID has a track record of investing in strengthening sector policy and institutions responsible for developing and sustaining WASH services and linking these to core government systems and it is important that this is not overlooked in the current drive to deliver results**. There is evidence from the WSP Country Status Overviews to support continued investment in strengthening the capacity of governments to plan sector investments effectively. DFID needs to work closely with other donors in order to devise appropriate forms of support for countries at different stages of WASH sector development.

115. **DFID WASH programmes have tended to be more focused on delivering the MDG WASH targets (i.e. to reduce the *proportion* without access) than on improving equity of access or targeting populations with the greatest burden of disease**. While national coverage rates have increased in recent years many countries report growing inequity in access across the population (e.g. between different parts of the country or between urban and rural areas) with access consistently lowest for the poorest quintiles across DFID countries[110]. We know that inadequate WASH impacts disproportionately on children under five and on the most vulnerable groups in society

[108] HR Capacity Gaps in WASH (forthcoming)

[109] While DFID has clear guidelines on procurement procedures it remains difficult, without accompanying guidance on unit costs, to assess the competitiveness of quotes received

[110] WHO/UNICEF JMP

who typically live in underserved areas with higher exposure to health risks and a greater share of the disease burden[111]. We also know that the burden of collecting water where access is limited falls predominantly to women and girls[112]. A number of DFID WASH programmes include separate provisions for including women and girls, ethnic minorities and other poor and marginalised groups[113]. There is now a growing body of evidence to suggest that the benefits of WASH services are greatest when the poorest are provided with access (see Box 18). This implies that **targeting the poorest may be a more efficient use of UK aid for WASH but further work is required in order to better understand the additional benefits and incremental costs involved in different settings**.

Box 18: Estimating the impact of pro-poor sanitation[114]

A recent study conducted by SHARE uses existing household survey data to estimate disparities in sanitation related services, exposures, susceptibility, health burden and impact of infrastructure improvements. Using children under five as the unit of analysis it compared estimates of the impact of access to a non-shared improved toilet among quintiles in rural and urban areas in 10 countries in Africa and Asia. The study found that children in the poorest household suffer up to 20 times greater health burden associated with inadequate sanitation. This is due to a combination of greater susceptibility (e.g. lower nutritional status) and greater exposure (e.g. less likely to have a facility, more likely to share it, greater density of population living without sanitation). The study shows that improving sanitation for households in the poorest quintile result in two to more than six times greater health benefits than improvements to the richest quintile. While there are differences in sanitation burden in rural and urban settings, children in both settings have the highest burden overall. The study does not directly consider the incremental costs involved but suggests that more effective targeting of investment at the poorest children would yield substantially higher returns in terms of health impacts. It notes that despite the disproportionate burden on the poor and disproportionate benefits of improved sanitation for the poor, current monitoring indicators do not incentivise improvements targeted towards those who need it most (i.e. focus on households rather than children, focus on access rather than exposures, do not disaggregate by income). Better information on the relative contribution of shared facilities and density of population without sanitation would allow for better identification and targeting of priority areas.

116. **Efficiency gains may also be achieved through better integration of WASH with other DFID interventions such as health, nutrition and education in order to maximise potential synergies between them**. DFID is currently piloting integrated approaches in India (Box 19) and there is potential for operational research in order to better understand the additional benefits and value for money of integrated programming and potential for developing joint programme targets and common outcome indicators, for example in child health.

Box 19: Integrated approaches to WASH, health and nutrition in India

There is strong evidence showing the link between poor WASH and diarrhoeal disease. According to UNICEF, diarrhoea kills 1000 children every day in India. Diarrhoeal disease is therefore responsible for 20% of all child deaths and is the second biggest killer of children. Further, the poor face a disproportionate share of the morbidity and mortality burden. WSP India report that although India is on track to achieve its MDG in water, a high proportion of the poorest do not have access to a safe and reliable water supply. Access to sanitation stands 45% across the country and at only 26% in the poorer states resulting in widespread open defecation. Funds are available for improving sanitation but more than 40% remain unspent due to institutional inefficiencies and capacity barriers. Women and girls not only bear the brunt of poor WASH access in India due to the time spent collecting water, but

[111] Female 'manual scavengers' responsible for shifting the faeces of others in parts of India provide a good example

[112] Women and girls are responsible for fetching water in 92% of households surveyed in Mozambique

[113] For example, the ASEH programme in Bangladesh included disaggregated targets for the extreme poor.

[114] Rheingans et al (2011) Disparities in Sanitation Exposures, Susceptibility and Risk: Estimating the Impact of Pro-Poor Sanitation, draft September 2011

also represent the majority of the country's 'manual scavengers' who make their living cleaning human excrement from India's roads and dry latrines (a profession which is now officially illegal)[115].

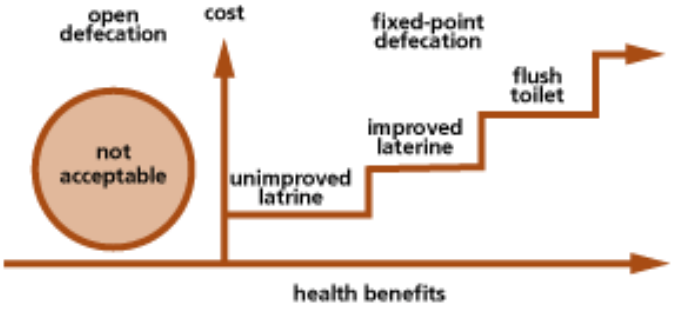
DFID India aim to increase sustainable WASH access (particularly for women and girls) in the poorer states: Bihar, Madhya Pradesh, Orissa and Uttar Pradesh and in doing so reduce the health and care-giving burden. Improved water supply will reach 30.5 million, improved sanitation will reach 33.5 million and additional hand washing will reach 21.1 million with DFID attribution 3.1, 10.7 and 6.7 million respectively. Socially excluded groups will be targeted.

A key element of the DFID approach in India is that WASH is an integral part of wider DFID health sector programmes. This integration ensures close joined-up working and maximises potential synergies. Outcome calculation considers the level of WASH contribution to wider morbidity and mortality. The collective DFID focus is on strengthening capacity of government agencies (improving planning and procurement) to deliver more, better, faster DFID support in turn unlocking other resources, building partnerships (out-sourcing) and encouraging innovation

The total programme cost is £57 million with £28 million already committed with a value for money rate of return of 1:7/9. DFID India's health programmes in 3 states have expected benefit-cost ratio ranging from 1.8 in Orissa to 1.5 in MP, with a rate of return of 35%, 31%, and 26% in Orissa, Bihar and MP respectively. With the addition of a new partnership with UP, DFID's investment of £442m between 2011 and 2015 in four states (for health, nutrition and WASH), will directly avert over 100,000 child deaths and 13,000 maternal deaths, and reduce the number of underweight children by 2 million. Overall, it is estimated that DFID's investment will directly save 7m DALYs. The cost per DFID attributable DALY in India is £63.

117. Analysis by Africa Infrastructure Country Diagnostic (AICD) and others suggests that there is significant **potential for efficiency gains through better understanding the trade-offs between cost and benefits associated with numbers of people reached with different levels of service**. Sanitation service levels can be conceptualised as rungs on a 'ladder' starting from open defecation (no service) and progressing to traditional latrines (various types considered 'unimproved'), then 'improved' latrines (including SanPlat, VIP latrines and basic latrines with slabs), and finally flush toilets (connected to either a septic tank, small bore or main sewer network) (Figure 30). Each rung of the ladder entails higher unit costs and is associated with lower health risk. Depending on context the benefits of moving a large number of people onto the lower rungs may be greater than moving a smaller number onto the top rungs of the ladder. A similar logic applies to water supply where surface water (no service) represents the bottom, with dug wells and boreholes in the middle and stand posts and piped connections, etc, at the upper end. The evidence suggests that distance to source is a key factor requiring further research to quantify and compare the additional health and economic benefits with the incremental costs of providing higher levels of service.

Figure 30: The sanitation ladder



118. *Effectiveness* is about doing things well in accordance with organisational objectives. **Evaluation documents for the WASH projects analysed were generally found to be of a good standard but the dissemination and sharing of lessons learned within**

[115] WaterAid India (2009) Burden of Inheritance

DFID and between DFID and its partners remains sub-optimal. Many of the evaluations were conducted by external consultants and while the approaches adopted are broadly similar there is currently no standard ToR or template for reporting results achieved. Furthermore systems for storage and retrieval of archived project information could be greatly improved and made more accessible, especially for staff based in country programmes.

119. **While the evidence of impact outlined in Chapter 2 is sufficient to justify continued investment in WASH there is a need to strengthen the evidence base relating to the cost-effectiveness of different interventions, particularly at scale**. The review found that existing analysis of value for money along the WASH results chain within DFID tends to focus more on inputs (money) and outputs (facilities) than on outcomes (access) and impacts (health). Only a small number of WASH programmes have so far attempted detailed analysis of the effectiveness of WASH interventions. Box 20 shows how rigorous monitoring and evaluation enabled the SHEWA-B programme to identify problems early on and revise its approach thereby improving the effectiveness of its hygiene promotion activities. The review of project documents and interviews with advisers suggests that **further improvement in the effectiveness of DFID WASH programmes will require increased investment in operational research based on rigorous programme evaluations, possibly married to large research programmes, with greater attention to health impacts and the additive effects of integrating WASH within health and education programmes.**

Box 20: Monitoring outcomes and impacts of WASH programmes: SHEWA-B

Supported by DFID with technical assistance from UNICEF, the SHEWA-B programme aims to improve the hygiene behaviour of 30m people in rural Bangladesh over 5 years. A detailed evaluation by ICDDRB after 18 months of this five-year programme showed that washing both hands with soap or ash after cleaning a child's anus increased from 22% to 36% ($P<0.05$), and the proportion with no access to a latrine decreased from 10% to 6.8% ($P<0.05$) from baseline to 18 months. Other hygiene practices improved in both intervention and control communities. However, handwashing with soap associated with food preparation, handling and consumption remained below 2% of occasions, suggesting how hard it can be to shift a social norm for a rare behaviour. The prevalence of diarrhoea and respiratory illness among children <5 years of age were similar in intervention and control communities throughout the study. A qualitative evaluation suggested that the programme was probably trying to improve too many practices at the same time, and that a mass media component was likely to be a cost-effective addition to the programme. With sharper, more focused programming and new materials for the 10,000 active hygiene promoters currently being implemented, the programme is starting to show improved results.

120. **Interviews with advisers emphasise that understanding the political economy of WASH sector development is a further important factor in designing programmes that have a greater likelihood of delivering results**. Interventions that might be expected to deliver value for money on paper may not be feasible in practice given the political dynamics and capacity constraints of the local operating context. A good understanding of the dynamics and trajectory of WASH sector development can help inform decisions on the timing and sequencing of interventions and the choice of modalities for delivering support. DFID has pioneered work on drivers of change and political economy analysis and is starting to apply this in the WASH sector[116]. However translating this understanding into practical guidance for country offices on choice of intervention and selection of local partners requires more work.

121. **Analysis of the existing WASHPR shows that country programmes are generally risk averse with very few projects categorised as high risk[117]**. DFID's capacity to take and manage risks depends on having on the ground capacity to monitor and support

[116] ODI (2011)

[117] With the exception of projects in Iraq and Afghanistan.

partners. This is particularly important in fragile states where the capacity of government partners to absorb and spend funds effectively is weak. One of the reasons why so much existing spend goes through multilaterals is that they have well-established systems for managing risk, but they may not always be the most effective channel for support.

122. **DFID is committed to continuously improving its systems for reporting on the value for money of all its investments. This is true for WASH where DFID has actively championed efforts to improve sector monitoring and reporting at global and national levels**. There is significant potential for learning and sharing of experience across sectors (e.g. health, education, WASH) and for benchmarking with other organisations including bi-lateral and multi-lateral donors. Interviews with stakeholders suggest that DFID is regarded as one of the front runners in driving forward the debate on evidence of impact and value for money of results achieved. The new Independent Commission on Aid Impact will further strengthen DFID's capacity in this area. DFID's ability to link wider efforts to reform the aid system - or to reform developing country government core systems - with sector level reform initiatives remains a key comparative advantage.

Strengthening DFID's capacity to deliver

123. **DFID needs to continue to ensure that it has the right capacity in place at the appropriate level to deliver value for money in WASH investments.** Consultation suggests that the recent relocation of the WASH policy team from Climate and Environment Group to the Human Development Department is regarded as a positive development as WASH is now more clearly positioned within Policy Division as an essential basic service alongside health and education. However the WASH team will need to continue to work closely with the Climate and Environment Group, especially on issues related to water resources management and climate change adaptation.

124. **WASH is just one of a range of competencies within the infrastructure cadre and there is no separate WASH cadre within DFID**. WASH is primarily the responsibility of infrastructure advisers. Most infrastructure advisers have a core specialism (transport, energy, water) but there are relatively few infrastructure advisers who specialise in WASH. A number of other advisers also provide inputs into WASH programmes which makes it difficult to assess overall WASH capacity in DFID. Unlike other professional networks the network of advisers working on WASH remains largely informal. Interviews with advisers suggest that there is demand for a more structured programme of learning and support for advisers and non specialists managing WASH programmes.

Table 28: DFID WASH Network Members August 2011

Country	Officer	Position
Bangladesh	Joanne Manda	Climate Change & Environment Adviser
Bangladesh	Naved Chowdhury	Social Development Adviser
DRC	Rodney Dyer	Wealth Creation Team Leader
DRC	Holger Grundel	Growth & Natural Resources Team Leader
DRC	Phoebe White	Policy & Programme Officer
Ethiopia	Morag Baird (incoming)	Service Delivery Adviser
Ethiopia	Praveen Wignarajah	Climate Change Adviser
Ghana	Sean Doolan	Climate Change & Environmental Governance Adviser
India	Ashufta Alam	Snr Infrastructure & Urban Development Adviser
Malawi	James Mambula	Water & Sanitation Programme Manager
Mozambique	Rita Zacarias	Climate Change Adviser
Nepal	Matt Gordon	Human Development Team Leader
Nepal	Nita Pacchai	Water & Sanitation Programme Manager
Nigeria	Sarah White	Human Development Team Leader
Rwanda	Sion McGeever	Climate, Growth & Infrastructure Adviser
Sierra Leone	Martin Walshe	Snr Regional Infrastructure Adviser
Sierra Leone	Susan Mshana	MDG Team Leader
Sierra Leone	Sam Grout-Smith	Human Development Adviser
Sudan	TBC	
Tanzania	Magdalena Banasiak	Climate Change Adviser
Tanzania	Liz Tayler	MDG Team Leader
Tanzania	Gertrude Mapunda Kihunrwa	Social Policy Adviser
Vietnam	Mark Harvey	Snr Infrastructure Adviser
Zambia	Kelley Toole	Vulnerability & Food Security Adviser
Zimbabwe	Indranil Chakrabarti	Social Development Adviser
Zimbabwe	Selina Newell	Humanitarian & Communications Officer
UK - Africa Directorate	Peter Taylor	Head of Africa Cabinet & Strategy Team
UK - Growth & Resilience Team	Iris Krebber	Food Security Adviser
UK - Joint Trade Policy Unit	Adam Jackson	Policy Lead

125. **DFID needs to combine specialist advisory support with more and better cross sector working**. Table 28 lists the advisers currently working on WASH in DFID country programmes. There are currently no WASH advisers at regional level. Only 4 of DFID's 10 biggest WASH programmes are currently overseen by Infrastructure Advisers specialising in WASH. The rest are managed by advisers with other specialisms including social development, food security, environment and climate change. There are a number of different advisory models used across DFID country programmes and there are advantages to having both 'sector specific' advisers and 'hybrid' advisers in different contexts but there appears to be consensus that large programmes (>£10m pa) merit specialist advisory support. Opportunities exist to make better use of other advisers (e.g. health, nutrition, education, governance) in order to help maximise the value for money in WASH investments but these linkages currently tend to be ad hoc and informal with relatively few examples of jointly designed programmes with joint monitoring and reporting on interrelated outcomes such as child health, school attendance or empowerment and accountability. Box 21 summarises recent developments.

Box 21: Integrated approaches to education and WASH

DFID's policies, strategies and guidelines for education increasingly integrate WASH issues. See for example 'Raising Clean Hands' which includes a six point action plan for WASH in schools and the recent Guidance Note on School Infrastructure which has a dedicated section on WASH. In the UK the Education Policy Team and the WASH Policy Team have recently collaborated on the development of the Girls Education Challenge Fund and on a systematic review of the impact of separate latrines on girls' school attendance. A growing number of DFID country programmes support school WASH programmes. These are mostly managed by education advisers with occasional inputs from WASH advisers. The review found that WASH spending under education programmes is significant but largely invisible in the OPs where it is generally coded as education and the BAR 'offers' which focus on domestic WASH. The table below provides some initial estimates of indicative results and spend.

Zimbabwe	At least $3m (2012-2015) for school latrines.
Bangladesh	Govt education programme (PEDP3 2011-2015) includes $91.53m to build/repair WASH in schools (127,000 toilets and 39,300 drinking water points). DFID contribution to overall cost of the programme is 15% (37% of development costs). 15% of the school WASH component would be $13.73m
Sierra Leone	$10m (2011-2015) to provide WASH in around 2000 schools
South Sudan	$1.36m total. 102 Toilet blocks ($850K), 34 borehole water points ($408K), 64 water collection point/tanks ($102K).
Ethiopia	Current support to Watsan which ends next year includes financing for institutional latrines (schools and health centres). Last year 352 were blocks were built at a cost of around $2,500 each (low cost construction with 6 holes in the block). This exceeded the target of 150 blocks. Regions do not report on how this breaks down by schools, but we estimate that around 40% would have been put into schools. This represents expenditure of around $352,000 last year. Current planning is to construct another 150 blocks next year.

126. **It is clear that DFID will need to continue to develop new skills and capacities in order to meet future WASH challenges**. Urban WASH presents particular challenges and requires long term engagement and significant investment. The key challenge for DFID is to identify its comparative advantage and niche in this area. Scaled up support in this area will require specialist advisory capacity in order to engage effectively, manage risks and deliver value for money.

Maintaining DFID's comparative advantage

127. Interviews with other donors suggest that **DFID is widely regarded as an important player and considered to have played an important political or leadership role in shaping the development of the WASH sector over the past decade.** DFID has promoted and supported a number of important global initiatives that have influenced the way in which WASH aid is allocated, including JMP/GLAAS and more recently Sanitation and Water for All. Partners report that DFID's credibility as a WASH donor stems from its ability to combine policy and research expertise and extensive programme experience on the ground.

128. **A perceived strength of the existing WASH portfolio is the ability to draw on relevant expertise from other parts of DFID (e.g. public financial reform, governance and aid effectiveness) and draw lessons from initiatives that DFID supports in other sectors** (e.g. PRSPs, Education Fast Track Initiative, International Health Partnership, Global Project for Output Based Aid, International Aid Transparency Initiative). DFID has a reputation for being focused on poverty, for being willing to invest resources in research and evaluation, and for challenging and supporting partners and peers to demonstrate results and ensure value for money.

129. DFID has made a significant technical contribution to the sector through its support to research and development of policy and programming innovations. DFID has a track record of supporting the generation and dissemination of knowledge and research in the water sector including through its long running EngKAR programme and more recently through its investment in Research Programme Consortia. A recent review made a number of recommendations for increasing scientific rigour and maximising the uptake and use of research and evidence in developing countries (Box 22). The Sanitation and Hygiene Applied Research for Equity (SHARE)[118] research consortium supported by DFID's Research and Evidence Division (RED) is currently the largest research programme on sanitation and hygiene in the world (£10m over 5 years).

Box 22: DFID support for high quality applied research on WASH

Between 1995 and 2002, DFID commissioned over 200 research projects within the Knowledge and Research (KaR) programme. This programme was set up to improve DFID's water, sanitation and hygiene (WASH) work and to maximise the overall WASH contribution to DFID's aims of poverty alleviation. The 2002 KaR evaluation confirmed that there was a significant gap between knowledge produced, the level of scientific rigour and its translation to inform significant and tactical change and improvement in the sector. The 2008 DFID Research Strategy committed DFID to undertake research which would contribute to the achievement of the hardest-to-reach MDGs by 2015. In 2009, two scoping studies focussing on 'Research-into-Use' were commissioned to identify potential areas of research that could have significant impacts towards helping meet the MDG sanitation target. The studies assessed the knowledge gaps and the demand for long-term research on sanitation and on water and sanitation research into use. This led to a decision within DFID to establish a dedicated research initiative on sanitation and hygiene. This became the Sanitation and Hygiene Applied Research for Equity (SHARE) programme, with a budget up to £10 million over five years. SHARE's goal is the development of a body of validated high quality policy, technical and institutional knowledge that adds a significant contribution to the understanding of sanitation and hygiene issues in DFID's target regions and countries. The SHARE programme portfolio is expanding and includes: an assessment of the WASH/Nutrition linkages; Randomised Control Trials in India (in partnership with the Gates Foundation) to assess the effectiveness of improved rural sanitation on diarrhoeal disease and nematode infections; and the Literature Review referenced extensively in this paper.

130. **DFID's financial contribution to the WASH sector is significant and it is currently one of the Top 10 bilateral donors to WASH. As such DFID is able to exert influence during discussions on WASH sector financing at national and international levels**. The fact that DFID's aid to WASH is concentrated in a relatively small number of countries means that it is often one of the biggest bilateral WASH donors in any given country (e.g. Ethiopia). DFID's contribution to leading multi-laterals operating in the sector (EC, World Bank, UN, AfDB, ADB) is a further source of influence within the sector. **Maintaining DFID's current role as a leading donor in the WASH sector will require continued strategic engagement in national policy dialogue and international policy processes, supported by selective investment in high quality internationally relevant policy and research**.

[118] www.shareresearch.org

Responding to future challenges

131. The WASH sector faces a number of wider challenges that are likely to impact on efforts to accelerate progress towards the MDGs and beyond including population growth, urbanisation and climate change[119].

132. It is essential that population growth is taken into account when planning future investments in WASH. JMP 2010 shows that over 1.3 billion people have gained access to sanitation since 1990, which in itself is a significant achievement, but because **improvements in sanitation services have been outpaced by population growth there are more people living without access to sanitation today than in 1990 (2.6bn)**. While 7 out of 10 people without improved sanitation live in rural areas, the number of people in urban areas without sanitation is increasing because of rapid growth in urban populations[120]. The numbers of those living in slums is projected to grow from the present one billion people (32% of the world's urban population, 78% of the urban population in least developed countries) to two billion by 2030 if no further action is taken (UN-HABITAT, 2003).

Urbanisation

133. **Rapid urbanisation in developing countries where DFID works presents huge challenges to extending and sustaining access to WASH services.** In Nigeria badly deteriorated infrastructure caused by underinvestment over a period when urban populations have grown rapidly has resulted in large peri-urban populations living without access to WASH. Rapid urbanisation in Sierra Leone combined with deteriorating infrastructure has contributed to declining levels of access. DFID's WASH programmes have historically been predominantly focused on rural areas where the needs are greatest in terms of reaching the MDGs. While DFID has supported a number of programmes focused on peri-urban and low income areas these have tended to be relatively small in scale. While the need is great and there is potential for DFID to do more work in towns and cities, **further work is required in order to determine how to work effectively at scale in urban settings and to clarify DFID's comparative advantage in this area** (Box 23).

134. A recent review commissioned by DFID suggests that **it is possible to achieve equitable and sustainable water and sanitation service to the urban poor only through the development of a 'good enough' service provider or utility**. Such a utility delivers services at the right price for higher-income consumers that also allow for cross-subsidies to the poor. Extension of utility services to the low-income settlements then requires only 'normal' levels of capital investment per person, with a range of possible financing options, along with enhanced 'software' support to households and service providers. Similarly, the failure of designated entities such as municipalities to undertake the necessary enabling reforms with respect to low-cost sanitation can be only partially by-passed by non governmental organisations. If sustainable, equitable and efficient sanitation coverage is to be achieved, government entities need to take effective responsibility.

[119] OECD estimates that even developed countries where most people already have access will need to substantially increase investments in order to rehabilitate existing infrastructure, to conform with more stringent environment and health regulations, and to maintain service quality over time. According to recent projections, France and the United Kingdom will have to increase their water spending as a share of gross domestic product (GDP) by about 20% just to maintain water services at their current levels, while Japan and Korea may have to increase their water spending by more than 40%. In the United States, the Environmental Protection Agency has estimated that annual investments of USD 23 billion will be needed over the next 20 years to maintain water infrastructure at the current service level and to comply with stricter standards.

[120] Wssinfo.org

135. **Experience shows that it is impossible to achieve significantly beneficial *and* sustainable water and sanitation services to slum dwellers – the most vulnerable and needy urban group – without facilitating improved services to *all* urban consumers**. This highlights the need for a 'city wide approach'. It is therefore not possible to facilitate delivery of sustainable services to the urban poor without addressing the institutional challenge. It is possible to focus on particular aspects of services, water to the destitute/street sleepers, or communal sanitation facilities, for example in advance of institutional development. But such services will only function for as long as the external agency continues to support them.

Box 23: Entry points for addressing the urban WASH challenge

The development of viable service providers/ facilitating entities to a 'good enough' level from their present 'just enough' level requires support for capacity-building, change management and equally significant levels of support to the critical 'enabling environment', necessary to allow service provider reform to take hold ahead of the 'governance trend line'.

Experience suggests that support should be aimed not to individual utilities – which leads to donor capture and disempowerment – but to a national or 'regional' group where competitive bidding for available comprehensive capacity-building and enabling environment resources, as well as fixed asset investment, is stimulated and incentivised by bench-marking, league tables, awards and prizes. The Water Services Trust Fund in Kenya can be seen as an interesting example of this approach.

The support required is not particularly high relative to the necessary and normal levels of capital investment for urban water and sanitation but is high relative to usual donor practice. 'Good enough', ordinary, institutional development also requires a longer intervention than normally seen as acceptable (ten years minimum).

The UK has significant and particular capabilities in supporting such reform in the water and sanitation sector having spent the last twenty years going through its own reform process, albeit from a higher starting point. Critical tools for utility development include: reorganisations to drive efficiency gains; the development of significant out-sourcing; strengthening the role of the economic and quality regulators; customer accountability mechanisms; ongoing initiatives to support the poorest; the development of asset management plans to overcome the long-running failure to invest sufficiently in capital maintenance. However, research taken out for this Review suggests that DFID has so far been unable to undertake the necessary commitment to the breadth of engagement and the length of engagement required to make a sustainable difference.

It is also possible to support more limited initiatives with particular groups in specific subsectors, recognising that the benefits will likely remain only for the duration of the support. This could indeed be a valid strategy and potentially far cheaper than the alternative of institutional development described above. That is to say, the donor would plan to implement and continue to pay for the maintenance of infrastructure/limited service delivery for a long period of time (e.g. twenty years) in order to deliver health and household benefits in the slums with the expectation that general socio-economic development and institutional development would eventually catch up and take-over that responsibility.

It is equally possible to contribute to comprehensive multi-lateral programmes that recognise the broader institutional challenge, although commitment also presents challenges here. The UN-Habitat Lake Victoria Region Water and Sanitation Initiative is an example of targeting secondary towns in an appropriately comprehensive manner and demand driven, regional or pooled manner.

The priority for external support to improve water and sanitation for the urban poor continues to be multi-element assistance to develop and maintain the institutional enabling environment such that service entities can have the governance space, as well as the incentives, to accelerate service delivery to all urban consumers and build resilience of urban infrastructure in the face of demographic and climatic changes.

Climate change

136. **Climate change is likely to impact on access to WASH in a number of ways but a great deal remains uncertain**. The Water and Sanitation Policy Team funded, and implemented with WHO, an assessment of the potential impact of climate change in the medium term on water and sanitation services through the 2030 Vision Study. This was

the first study to address this issue at a global scale and the first study to address rural and non-utility water supplies. The study aimed to increase understanding how and where climate changes will impact on water and sanitation services; how technologies and management systems could be improved to maximize their resilience; and what will need to be done differently to build resilience of WASH services to climate change (Box 24).

137. **Improved access to water and sanitation reduces exposure to climatic variability and is therefore an important 'first line of defence' when it comes to reducing the vulnerability of poor people to climate change**[121]. As such scaled up investment in WASH should form a central component of emerging climate adaptation strategies at national and international levels. However the relative importance of access to water and sanitation in reducing the vulnerability is likely to vary widely across populations. WASH advisers will therefore need to continue to work closely with advisers working on climate and environment in order to maximise coherence across DFID's policies and strategies in this area.

Box 24: Assessing resilience of water and sanitation services to climate change

The Vision 2030 study involved 3 strands of analysis:
1. Identification through literature review and expert consultation of the vulnerabilities of water and sanitation technologies and management systems to climate change and how these could be improved to increase resilience;
2. Global decadal forecasts for 2020 and 2030 focused on average rainfall and heavy (5-day) events and temperature, undertaken by the Met Office Hadley Centre; and,
3. An assessment of likely future levels of coverage with water and sanitation technologies by the Joint Monitoring Program.

The study drew 5 key conclusions:
1. *Changes in policy and planning for water and sanitation are needed if ongoing and future investments are not to be wasted*. Some commonly used water supply technologies are unlikely to be resilient to future climate change and the widespread promotion of these technologies is not justified. Community-management of water supplies significantly increases vulnerability and this approach needs to be re-visited. Managing demand is critical for piped water supplies. Simple sanitation technologies are resilient to climate change, but sewerage is much more vulnerable and there is a need to re-assess whether sewerage should be considered the gold-standard for sanitation.
2. *Potential adaptive capacity in water and sanitation is high but rarely achieved*. Translating potential adaptive capacity into actual resilience can be achieved in some areas by using existing potential adaptations to technology and management and this is an urgent priority. More systematic assessments of climate vulnerability of utilities and rural water and sanitation programmes are needed.
3. *There are important gaps in our knowledge that impede effective action*. Targeted research is urgently needed on technology gaps and in improving basic knowledge of the water resource base from which services are delivered. Investment is needed to improve understanding of climate change at regional levels and for the development of simple tools to assess vulnerability.
4. *There is sufficient knowledge of climate trends, despite their uncertainty, to inform changes in policy and planning in most regions*. Action is needed in sub-Saharan Africa where early adaptation through changes in technology and management is required to avert a decline in already low coverage. In North Africa there is an urgent need to manage water services and resources to avoid further water scarcity. In Asia, a significant proportion of the high drinking water coverage relies on simple technologies using groundwater. These are resilient but action is needed in light of increasing challenges from flooding. Action will also be required to cope with the changing availability of surface water in the region.
5. *Adapting to climate change provides opportunities*. It can drive a greater emphasis on sustainability and create an impetus to achieve higher levels of service for those currently unserved passing through intermediate levels of services. Climate change also creates stronger pressure to rationalise technology use leading to better economies of scale.

[121] See for example ODI (2010) Adapting to climate change in the water sector. RiPPLE Working Paper. March 2010. Overseas Development Institute.