How to do Value for Money analysis for water, sanitation and hygiene (WASH) programmes

GUIDANCE NOTE (AUGUST 2015)

Marie-Alix Prat, Sophie Trémolet and Ian Ross
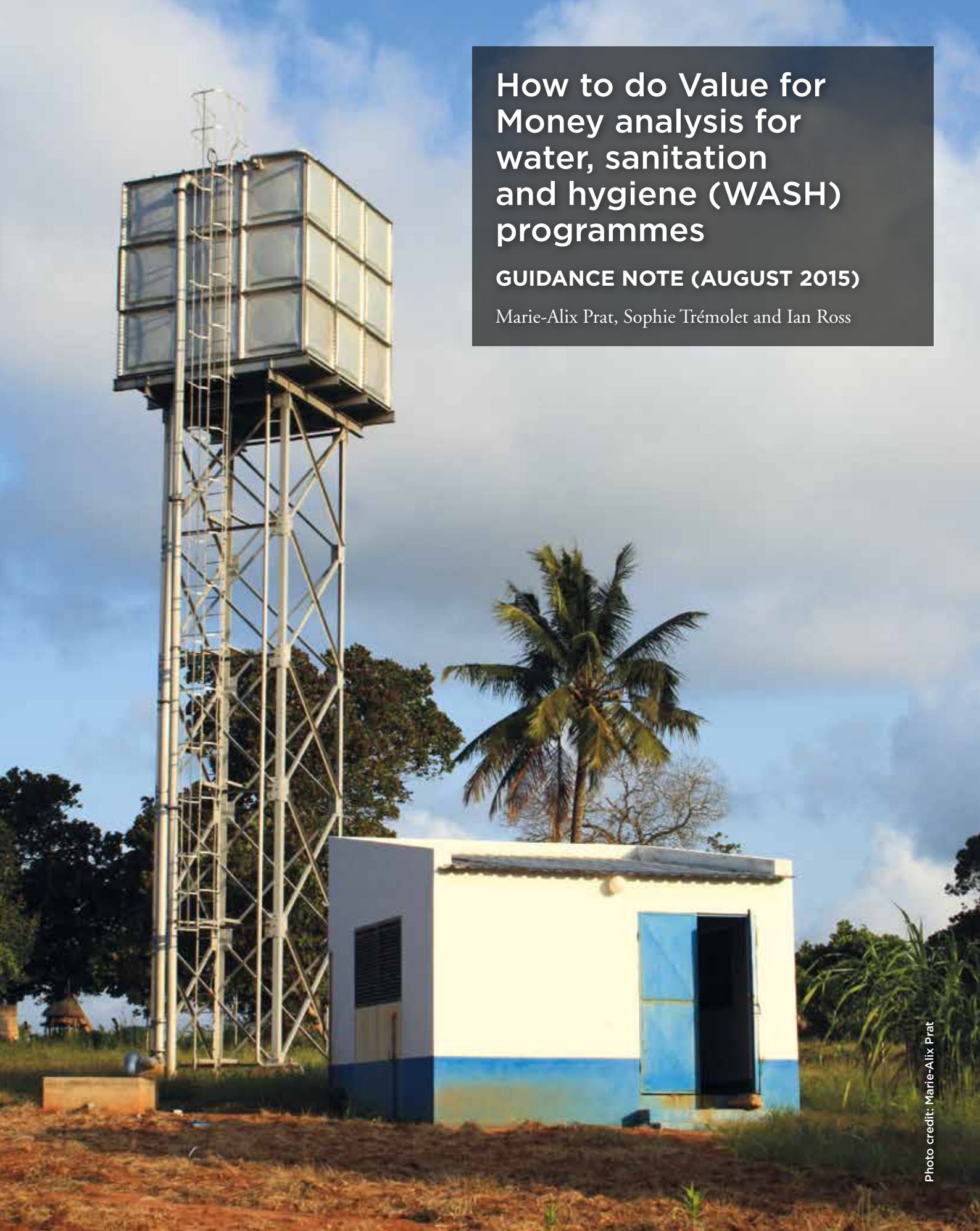
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VFM-WASH

Improving Value for Money and sustainability in WASH programmes

Abstract

This "how to" note provides practical guidance on how to analyse Value for Money (VFM) in water, sanitation and hygiene (WASH) programmes. It takes readers through a step-by-step approach to produce and analyse VFM indicators for WASH programmes, based on examples. It also provides guidance on how to interpret results of the VFM analysis.

The VFM-WASH project

This note is an output of the VFM-WASH project, which stands for "Value for Money and Sustainability in WASH programmes". This was a two-year research project, funded by DFID, carrying out operational research into DFID's WASH programmes in six countries. A consortium of five organisations, led by OPM, has carried out the work. Research partners comprise the University of Leeds, Trémolet Consulting, the London School of Hygiene and Tropical Medicine and Oxfam.

The project had two main objectives:

1 To identify how VFM and sustainability can be improved in DFID-funded WASH programmes through operational research in six countries (Bangladesh, Ethiopia, Mozambique, Nigeria, Pakistan and Zambia). In each of these countries, the project team conducted a VFM analysis of a DFID-funded WASH programme. The focus programmes in countries were implemented by large organisations such as UNICEF, by small NGOs or by government.

2 To assess the sustainability of rural WASH services in Africa and South Asia by carrying out nationally-representative household surveys in four countries (Bangladesh, Ethiopia, Mozambique and Pakistan), alongside gathering secondary data for a larger group of countries (e.g. existing surveys and Water Point Mapping initiatives).

See the project website for more information: http://vfm-wash.org

Acknowledgements

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List of abbreviations

CLTS	Community-led total sanitation
DFID	Department for International Development
DH	Direct hardware
DS	Direct software
DSA	Daily subsistence allowance
IPS	Indirect programme support
JMP	Joint Monitoring Programme
M&E	Monitoring and evaluation
MICS	Multiple indicator cluster survey
NAO	National Audit Office
NGOs	Non-government organisations
O&M	Operation and maintenance
ODF	Open defecation free
RIU	Research into use
S	Sanitation
SWSS	Small water supply system
VFM	Value for money
W	Water
WASH	Water, sanitation and hygiene
WHO	World Health Organization

Introduction

1.1 What is Value for Money and Value for Money analysis?

The UK Department for International Development (DFID) defines Value for Money (VFM) as "maximising the impact of each pound spent to improve poor people's lives" (DFID, 2011). This echoes the UK National Audit Office definition of VFM as "the optimal use of resources to achieve intended actual outcomes". A key element in both definitions is to make the best use of available resources to achieve sustainable development outcomes.

VFM can be measured on the basis of a set of standard indicators, which can help programme implementers (and their funders) assess whether or not their programmes are making the best use of available resources. Answering this question is not an easy task: it requires a "VFM analysis", i.e. collecting and analysing data on the costs and results of the particular programme, interpreting the VFM indicators generated, and comparing them with those of other programmes. A qualitative assessment is needed to interpret the results from the VFM analysis, in order to better understand the context, the types of results and the processes by which these results were generated so as to be in a position to identify areas where changes in programme management could improve the overall performance of the programme.

A key objective of conducting a VFM analysis is to help managers improve programme performance. It can give programme managers useful metrics to quantify the effects of challenges they observe on the ground and identify the best interventions to address those challenges, which could include the reallocation of resources.

Crucially, a VFM analysis is not necessarily about saving money and reducing unit costs: it is about maximising actual outcomes and impacts. Whilst the VFM of a programme could sometimes be improved by reducing the costs of certain inputs, greater and more sustainable actual outcomes can also be delivered by spending *more* on certain inputs.

Interpreting the results of a VFM analysis requires putting the indicators into context. Indeed, costs and results are always context-specific: high input costs may simply reflect different operating conditions. For example, the per capita cost involved in drilling boreholes in a remote part of arid northern Nigeria will inevitably be higher than in a community near a major town in the more accessible southern part of the country.

A VFM analysis therefore needs to consider key contextual elements of the programme, gathering as much information as possible on the operating conditions and the programme operating modalities and approaches. It follows that while a VFM analysis involves calculations and can provide comparable data, it does not by itself provide an 'answer' as to whether a programme or project is good value for money without considering the context. For this reason, it is strongly recommended that a VFM analysis be added to the essential toolbox of programme managers and evaluators rather than being considered as a stand-alone analysis that replaces other evaluation tools.

VFM analysis is still a relatively new idea, particularly in the WASH sector. This note provides a framework and guidance to conduct VFM analysis in the specific context of WASH programmes being implemented in developing countries. It is hoped that this methodology can be widely adopted by WASH programme analysts and evaluators so that data against a common set of common VFM indicators can gradually be built up and shared.

The goal of developing a standard and shared VFM methodology for the WASH sector lies at the heart of the Research-into-Use (RIU) agenda of the VFM-WASH project.

1.2 Who is this note for?

The target audience for this note includes:

- **Programme implementers** (NGOs, agencies or governments) looking to conduct internal VFM analysis for programme management and to improve the use of available resources so as to maximise results;

- **Programme funders** (a donor or a ministry) looking for information on the efficiency of their funding. This note could for example be used as a basis for writing terms of reference for hiring consultants to conduct VFM analysis or to ensure that the design of a monitoring and evaluation (M&E) framework allows for collecting essential data for VFM analysis;

- **Consultants** contracted to conduct the VFM analysis of a WASH programme or hired to establish an M&E framework;

- **External researchers** who want to better understand the effectiveness of alternative approaches to delivering WASH programmes.

The approach can be applied to programmes that have distinct water, sanitation and hygiene components, or any combination of such components. It can be applied to programmes with different sizes and implementing arrangements, including programmes implemented by a small NGO in a specific district, a programme implemented by UNICEF in several regions, or a national programme managed by the government.[1]

The proposed method is better suited to the analysis of service delivery programmes than to the analysis of programmes with a strong capacity development or advocacy element, although the main steps can be applied to analyse these programmes. The analysis can be carried out for ongoing programmes (to improve programme performance) or for completed programmes (for *ex post* evaluation and learning purposes).

Conducting a VFM analysis requires access to the relevant primary data and to enough qualitative information to make assumptions about the allocation of costs to different types of activities and results (outputs, outcomes and impacts). For the vast majority of programmes, it is unlikely that robust VFM analysis can be based only on publicly available secondary data: it is therefore essential to engage with programme implementers and stakeholders.

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1 In this guidance note, to keep explanations short and simple, the hypothetical programmes given as worked examples are discrete NGO projects where it is easier to connect inputs to outputs. This is in contrast with national programmes where complex public financial management systems and patchy sector monitoring databases complicate matters significantly.

1.3 Why is VFM analysis important and how can it be used?

Many organisations in the WASH sector claim to undertake performance-based management, but few do so in practice. Numbers of outputs and 'beneficiaries' are often reported without enough supporting evidence and without enough attention paid to whether such numbers were achieved in the most efficient, cost-effective and sustainable manner. This is a symptom of a broader problem, which is that some organisations do not have an integrated system for monitoring expenditure on inputs, processes, outputs and outcomes jointly and in a detailed manner.

The primary demand for VFM analysis is currently coming from funders (donors or domestic governments). Some request VFM analysis for reasons of accountability (e.g. to tax-payers, to their own funders, etc.), particularly when programme implementers are public agencies or NGOs that do not necessarily have a "VFM culture" to start with. However, most VFM analyses for donor reporting are performed in an *ad hoc* manner and are relatively rough. For example, many consist of calculating the overall costs per result of a programme, by dividing total programme costs by the estimated number of beneficiaries. This is a crude way of doing things, compared with a detailed allocation of each cost item to specific activities and outputs undertaken by the programme in relation to the actual number of people reached sustainably.

To improve the quality of VFM analysis in the WASH sector, a gradual increase in the level of detail and accuracy is required. From a funder's perspective, the value of such analysis will increase with the collection of a large number of comparative examples from different countries, across years, in different sectors, etc. To make this kind of VFM analysis viable in practice, it should ideally be conducted as part of a broader evaluation, which may be yearly, mid-term or after the conclusion of the programme. Official evaluators usually have better access to data and an opportunity to gather information, including qualitative information, about other aspects of the programme that can enrich the interpretation of results. Nonetheless, although VFM analysis should be included in all standard TORs for programme evaluations, it is important to note that VFM analysis is *not* an evaluation in itself – the framework is analytical rather than evaluative; i.e. the analysis provides critical insights and information that can form the basis of an evaluation.

When donors start demanding VFM analysis on a more regular and consistent basis, programme implementers will start adopting this as part of their standard *modus operandi* and will learn how to use the data to improve programme management. VFM analysis gives managers crucial quantitative metrics, backed up by qualitative analysis. By comparing a poorly performing programme with a higher performing one in the same country, with similar objectives and activities, a manager may be able to identify key VFM drivers and areas in which the poorly-performing programme could be improved. Programme implementers would be able to gradually develop the systems and address questions they need to answer so as to improve programme management. Such performance-based management will take time and effort, given that in this respect the WASH sector lags behind some other sectors, such as the health sector.

Programme implementers, particularly those focused on cost-effectiveness, may want do this for themselves irrespective of interest from funders. However, they may need guidance on how to include indicators of broader benefits, such as sustainability or equity.

A potential barrier to widespread acceptance of VFM analysis across the sector is the concern of programme managers that data may be misinterpreted or taken out of context. This note aims to show that a transparent and consistent methodology can reduce the risk that data are computed in very different ways and misinterpreted. The objective of such a shared methodology is to make metrics more comparable, while also emphasising that the context in which a programme is undertaken (geographical, socio-economic or otherwise) can be the single biggest determinant of costs.

The output of a VFM analysis should therefore not just be a series of quantitative indicators: Programme stakeholders must also engage with the exercise and the associated discipline of identifying and analysing hard numbers in order to deliver learning.

1.4 Structure of this note

This note is structured as follows:

- **Part A – Value for Money: a Conceptual Framework** – presents the concept of Value For Money, its components and key indicators. It highlights the importance of benchmarking and qualitative analysis to put the results of VFM analysis into context.

- **Part B – Conducting a VFM analysis in practice** – provides practical guidance for carrying out the VFM analysis of any WASH programme (with particular emphasis on rural programmes). The process of carrying out this analysis has been broken down into five main steps.

- Annex 1 contains a glossary of key terms;

- Annex 2 presents a worked example of VFM Analysis;

- Annex 3 contains some useful tools to support the VFM analysis.

Part A – Value for Money: a conceptual framework

A.1. Key components of a VFM analysis: results chain and indicators

The VFM conceptual framework is based on a logical 'results chain', which explicitly sets out the results to be achieved by a given programme. Figure 1 below presents the main elements of this results chain.

Figure 1. The WASH results chain[2]
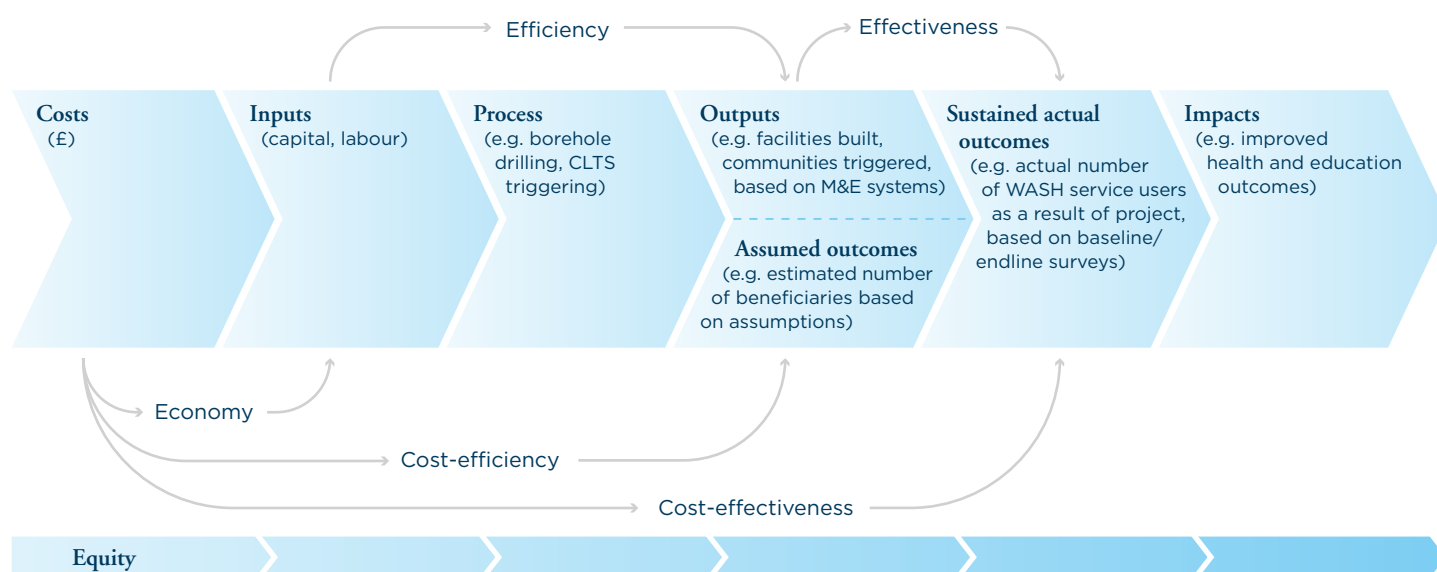
The results chain is composed of seven main elements:

1 **Costs** – the financial costs of inputs;

2 **Inputs** – the resources used, in terms of finance and staff time (capital and labour);

3 **Process** – the process by which inputs are transformed into results. Such processes can be the object of a programme evaluation (which would be useful as a source of qualitative assessment) but cannot be quantified through VFM analysis;

4 **Outputs** – the direct deliverables of the programme (number of water and sanitation facilities built, number of activities implemented such as CLTS triggering, etc.);

5 **Assumed outcomes** – resulting from the outputs, e.g. the number of beneficiaries assumed to have gained access to WASH services as a result of the outputs of the programme's interventions. This can be based on existing standards and assumptions at country level, or based on lists of households;

6 **Sustained actual outcomes** – i.e. the *actual* change in poor people's lives over time, such as the number of new people moving from using an unimproved water point to an improved one. The key difference with "assumed outcomes" is that "sustained actual outcomes" are measured based on household survey data before and after an intervention (e.g. 6, 12, 36 months after); i.e. based on the difference in key variables at baseline, endline and beyond. This captures the extent to which the outcomes have been achieved. Such data are only available if robust M&E and data collection frameworks are in place, which is seldom the case. Of the six programmes analysed by the VFM-

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2 In this guidance note, to keep explanations short and simple, the hypothetical programmes given as worked examples are discrete NGO projects where it is easier to connect inputs to outputs. This is in contrast with national programmes where complex public financial management systems and patchy sector monitoring databases complicate matters significantly.
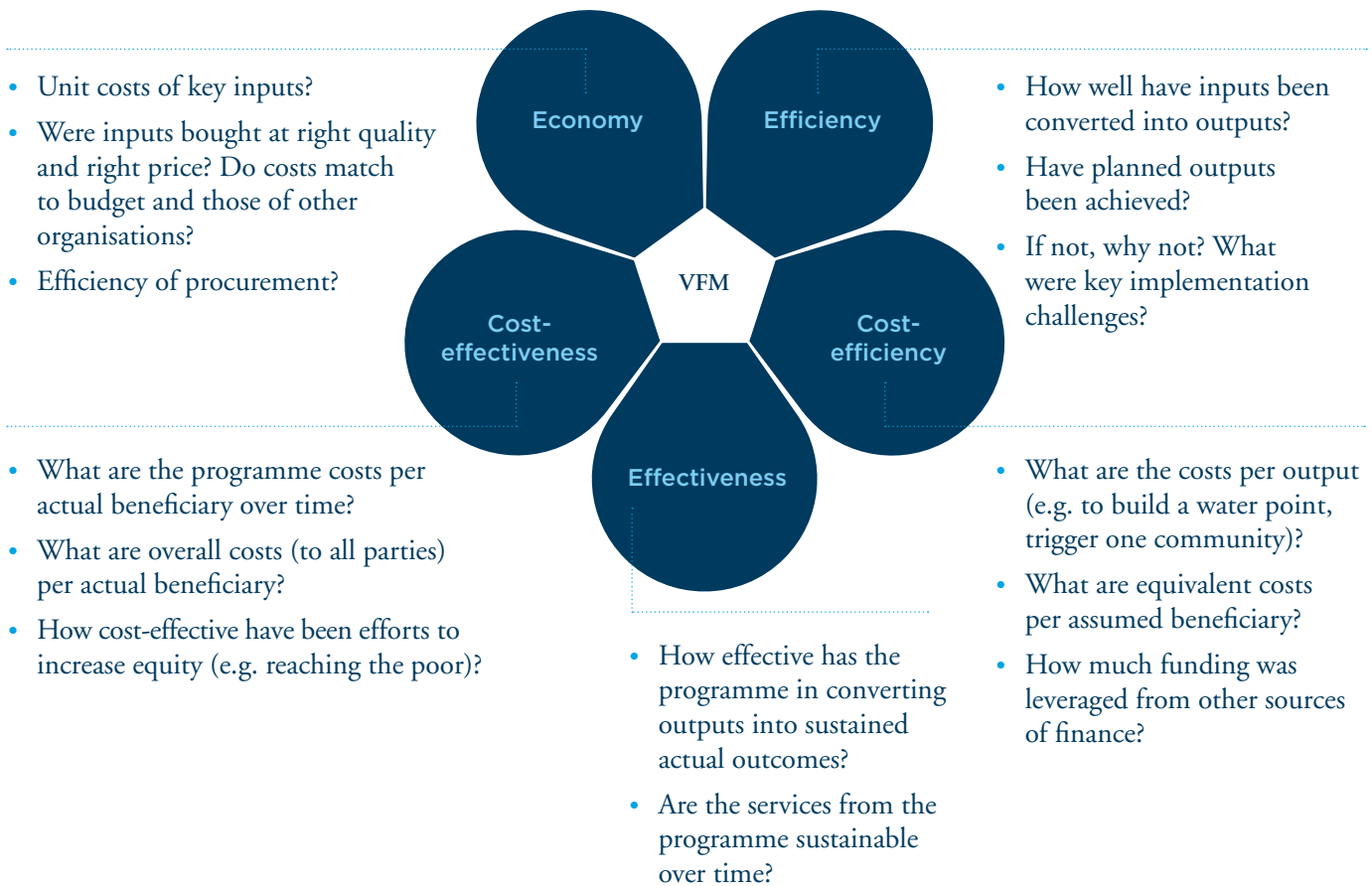
WASH project, only the SHEWA-B programme in Bangladesh had gathered data on actual outcomes that could be used for the VFM analysis. With more than one post-intervention survey, it would be possible to explore the extent to which outcomes have been sustained over time.

7 **Impacts** – the longer-term impact of the WASH programme, including the impact on health and education, e.g. reduced diarrhoea, increased school attendance, attendance, and on poverty reduction, which is the ultimate intended impact of DFID programming.

Figure 1 represents a chain of events through time, given that these different types of results would usually, but not always, take place sequentially. The causal links between these different types of results needs to be informed by evidence, however, as a sustained actual outcome (in terms of people actually using WASH services) or an impact in the programme area may be influenced by factors outside
the programme.

Five key dimensions can be analysed in the context of WASH programmes: economy, efficiency, cost-efficiency, effectiveness and cost-effectiveness. Each of these dimensions is defined by a conceptual relationship between two of the elements in Figure 1, as shown by the labelled arrows linking the different elements. Questions that need to be answered in order to characterise these five key dimensions are presented in Figure 2 below. Potential indicators for these VFM dimensions are presented in Table 1 below.

Figure 2. The five dimensions for assessing VFM of WASH programmes

- Unit costs of key inputs?
- Were inputs bought at right quality and right price? Do costs match to budget and those of other organisations?
- Efficiency of procurement?

- How well have inputs been converted into outputs?
- Have planned outputs been achieved?
- If not, why not? What were key implementation challenges?

- What are the programme costs per actual beneficiary over time?
- What are overall costs (to all parties) per actual beneficiary?
- How cost-effective have been efforts to increase equity (e.g. reaching the poor)?

- How effective has the programme in converting outputs into sustained actual outcomes?
- Are the services from the programme sustainable over time?

- What are the costs per output (e.g. to build a water point, trigger one community)?
- What are equivalent costs per assumed beneficiary?
- How much funding was leveraged from other sources of finance?

Table 1. Definitions of the five dimensions for assessing VFM of WASH programmes

	Description	Examples of indicators
Economy	Economy relates to the price at which inputs are purchased (consultants, supply of goods, transport, training etc.). Assessing economy consists of evaluating whether the manager is buying inputs of the appropriate quality at the right price. Economy in procurement is important in WASH programmes where transport and goods can represent a high proportion of costs.	Unit costs for key supplies Staff costs for different staff categories
Efficiency	Efficiency relates to how well inputs are converted into a specific output, such as the construction of a water point, conducting a CLTS campaign etc. The implementer exercises strong control over the quality and quantity of outputs that are produced.	% original targeted outputs achieved for budgeted amount % communities that have been declared ODF following CLTS 'triggering' Number of people living in communities that have been declared ODF following CLTS triggering
Effectiveness	Effectiveness relates to how well outputs from an intervention are converted into sustained actual outcomes. In contrast to outputs, the implementer does not exercise direct control over whether actual outcomes materialise and whether they can be sustained.	% of assumed outcomes translated into actual outcomes (i.e. assumed beneficiaries versus actual new users) % new users still using the service at a sustained service level after three years
Cost-efficiency	Cost-efficiency compares the costs of a WASH programme and the number of outputs and/or assumed outcomes reached. Cost efficiency would be expressed as a unit cost per unit of output (or assumed outcome) generated.	Cost per output (cost per borehole, cost per CLTS triggering etc.) Cost per assumed beneficiary (i.e. assumed outcome)
Cost-effectiveness	Cost-effectiveness is the cost of achieving intended programme actual outcomes (or impacts). This can be used to compare the costs of alternative ways of producing the same or similar outcomes.	Cost per actual beneficiary using sustainable WASH services (i.e. sustained actual outcome)

The main adjustments to the WASH results chain compared to the one that appeared in the DFID WASH portfolio review (2012) are as follows:

- **Distinguishing between assumed and actual outcomes:** Many organisations make assumptions about outcomes based on outputs. For example, they assume that a new borehole will serve 250 people. In practice, the new borehole might serve more or fewer people, depending on population density and how attractive the new facility is compared to the type of facility that people could access before. Some might continue to use an unimproved source because they consider the cost of using the new borehole too high, while others who use the new borehole might already have had access to an improved source (thus gaining only marginal benefits). The new borehole might fail over time and cease to provide improved services. The distinction between assumed and actual outcomes was therefore introduced in order to reflect those factors. Actual outcomes can only be measured if robust M&E systems with ongoing data collection are in place. In particular, it is necessary to measure the number of new users who gain access to improved services that they did not have before. Most programmes are not currently able to capture this, usually because robust baseline data has not been collected. One way to express the uncertainty resulting from a lack of data is to use ranges of estimates for the number of beneficiaries.

- **Taking sustainability and equity into consideration:** Most guidance uses the 'three Es' of economy, efficiency and effectiveness, with associated cost-efficiency and cost-effectiveness to measure VFM. It is also important to consider sustainability and equity as an additional layer of analysis that cuts across the main VFM dimensions. These can, however, be incorporated into a VFM analysis when enough data are available.

The sustainability of programme results can be considered when measuring effectiveness and cost-effectiveness, as both are based on "sustained actual outcomes". Measuring sustained actual outcomes at different points in time will highlight the number of people who initially were using the WASH service (as measured through an endline survey after project completion), but later stopped using it for a variety of reasons (as measured by a second post-implementation survey some time later). The extent to which this captures longer-term sustainability depends on the timeframe for VFM analysis and on data availability. Ideally, such data would be gathered at least three years after the programme, to verify that results have effectively been sustained. However, the most likely scenario is that a VFM analysis will be done during the programme or shortly after it ends. This kind of VFM analysis cannot predict whether the service will be sustainable in the future, as this would depend on factors such as the extent and quality of associated software activities (capacity development/ training etc.) and on ensuring that finance is available to undertake major repairs at a future date. Few organisations are effective at collecting sustainability indicators, which means that in practice, estimating the sustainability of outcomes remains difficult.

Equity can be considered at the level of outputs (the extent to which the programme has targeted outputs to address priorities in terms of improving equity) and at the level of sustained actual outcomes, where actual data on results at the level of the beneficiary population are collected. VFM analysis can assess whether the programme has been efficient at reaching targeted beneficiaries and can look at the costs per result for different groups. These groups can be defined in many ways, depending on how inequity manifests itself, i.e. through differences in income, gender, or social groups (e.g. castes).

A.2. Putting VFM into context: benchmarking and qualitative analysis

It might take a few days of crunching data to arrive at a figure such as "US$14 per beneficiary" as an indicator of cost-efficiency. But how do we know whether such an indicator reflects 'good' or 'inadequate' VFM? Such indicators mean relatively little on their own, out of context. Therefore, it is essential to benchmark results based on a similar analysis of other comparable programmes and to complement the computation of VFM indicators by qualitative analysis.

Benchmarks can be:

1 **Internal** – considering variations within the programme and reasons for it:

- across years, if there was a change of design during the programme;
- across geographical areas, where the programme was implemented differently;
- between units of implementation (between districts / schools);
- against stakeholder expectations (planned/ achieved).

2 **External** – considering other programmes:

- in the same country, but with a different implementation model;
- in other countries, with the same implementation model (e.g. comparing UNICEF school WASH programmes across several countries).

Of these possible benchmarks, external benchmarks within the same country are probably the most relevant, as there is a stronger chance of placing findings into context.[3] To understand if a programme is performing well, it is essential to compare it to other similar programmes. For example, CLTS programmes run by the same NGO across three countries might have different economy indicators (in terms of input costs), but at the efficiency stage the performance of this NGO programmes might be quite comparable, i.e. they could have similar records of converting staff time and resources into successful triggering.

As well as benchmarks, qualitative analysis of VFM indicators is needed to be able to interpret such indicators. To understand why one programme appears to be more cost-effective than another, it is essential to conduct at least a partial evaluation of the programme, including reading background reports and evaluations and, crucially, interviewing key stakeholders. For this reason, it is difficult to conduct the VFM analysis as a stand-alone exercise and much preferable to build the analysis into a more comprehensive evaluation of a programme.

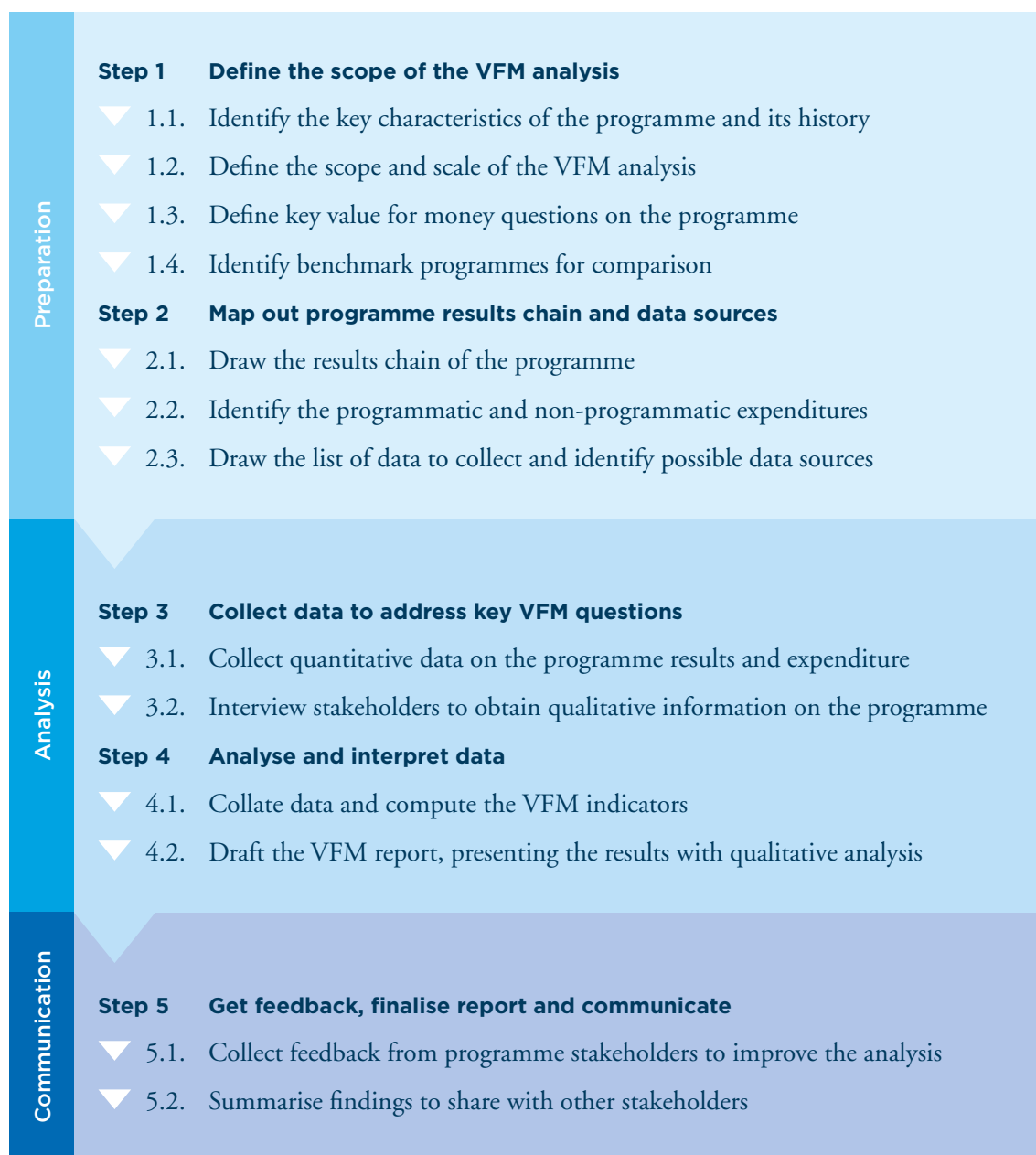3 Both internal and external benchmarks are important. Which are more useful depends on the assessor's standpoint. A programme manager might be more interested in VFM questions around making sub-contracting more efficient and therefore in using internal benchmarks across years. An external reviewer (e.g. a consultant or a NGO head office staff member) may be more interested in external benchmarks.

Part B – Conducting a VFM analysis in practice

This section provides practical guidance for carrying out the VFM analysis of any WASH programme (with particular emphasis on rural programmes). The process has been broken down into five main steps (Figure 3).Not all of these steps may be relevant, depending on the context, and particularly depending on whether the VFM analysis is a stand-alone exercise or part of a broader evaluation.

Figure 3. A five-step approach to conducting VFM analysis

Preparation		
	Step 1	**Define the scope of the VFM analysis**
	1.1.	Identify the key characteristics of the programme and its history
	1.2.	Define the scope and scale of the VFM analysis
	1.3.	Define key value for money questions on the programme
	1.4.	Identify benchmark programmes for comparison
	Step 2	**Map out programme results chain and data sources**
	2.1.	Draw the results chain of the programme
	2.2.	Identify the programmatic and non-programmatic expenditures
	2.3.	Draw the list of data to collect and identify possible data sources

Analysis		
	Step 3	**Collect data to address key VFM questions**
	3.1.	Collect quantitative data on the programme results and expenditure
	3.2.	Interview stakeholders to obtain qualitative information on the programme
	Step 4	**Analyse and interpret data**
	4.1.	Collate data and compute the VFM indicators
	4.2.	Draft the VFM report, presenting the results with qualitative analysis

Communication		
	Step 5	**Get feedback, finalise report and communicate**
	5.1.	Collect feedback from programme stakeholders to improve the analysis
	5.2.	Summarise findings to share with other stakeholders

Source: Authors

Below, we present in more detail the activities that need to be carried out under each of these steps. The text in boxes at the start of each section summarises key points. In addition, worked examples are provided in Annex 2 to clarify the type of analysis conducted.

Step 1 – Define the scope of the VFM analysis

Step 1 Summary

- Identify the key characteristics (type of programme, funding years, context, activities, geographical scale, implementation agencies, etc.) and build a narrative about the programme.

- Collate and read existing reports about the programme (e.g. business case, programme design document, initial budget, quarterly and annual reports, final report, financial report).

- Identify programme stakeholders; key people who know about the different dimensions of performance (e.g. programme manager, finance officer, M&E officer).

- Define the scope and scale of the VFM analysis (geographical boundaries and years of analysis).

- Define key VFM questions and consider whether the data identified above will be sufficient to answer them.

- Identify and select programme benchmarks comparators (comparable programmes) so as to be able to compare results and draw stronger conclusions based on the results of the analysis and start contacting them to assess their interest to take part in the FM study.

Narrative and main characteristics: Initial consultation with the programme implementation team will help to build a narrative of the programme and its main characteristics. Key (secondary) data on the programme, objectives, main components and activities should be collected from project documentation (business case, programme design document, final report, annual reports).

As the value of the analysis lies in the ability to compare results with those of other programmes, it is essential to describe the programme by using standard terms. Activities can be characterised based on a standard list of "Programme activities", as set out in Table 2 below. The "Programme Description Table" in Annex 1 provides a list of key information to be obtained on programme characteristics (dates, status, budget, sector of intervention, geographical scale, type of programme, purpose of the intervention, activities, implementers, financiers etc.).

Table 2. List of standard programme activities

Water	Sanitation	Hygiene	Cross-cutting support activities
• Construction of piped water supply systems • Construction of wells, boreholes etc. • Water supply in schools and health centres • Household water treatment and safe storage • Access to finance	• Sanitation community mobilisation (CLTS, CATS, PHAST etc.) • School sanitation • Construction of household latrines • Sanitation marketing • Faecal sludge management • Access to finance	• Hygiene promotion in the field • Community health clubs • Mass media campaign • Hygiene promotion in schools • Menstrual hygiene management intervention…	• Planning of WASH services at national level • Planning of WASH services at sub national or city level • Institutional development • Policy support • Implementation of M&E framework • HR training and capacity building

Source: Authors

The narrative aims to describe key evolutions and adjustments during the programme's period of operation. It should also identify key actors involved in the delivery of the programme (including executing agencies, sub-contractors, communities, households, central and local government, municipalities and donors etc.) and the different financing sources.

The team should also collect background data to better understand the overall context for the programme:

- At national level, obtain data on population figures, poverty levels and access to water and sanitation services, with disaggregated data between urban and rural (or any other relevant regional split);

- At programme level, obtain data related to the programme area (population, poverty levels and access to WASH services indicators).

- Note what objectives the programme has with respect to equity.

Identify and interview key interlocutors, who know about the different aspects of the programme (e.g. programme manager, finance officer, M&E officer) at different levels of interventions.

In discussion with programme implementers, the team should define:

- The **scope and scale** of the VFM analysis (years, geography and activities): The analysis may cover the entire scope and scale of the programme. However, programme implementers may be interested in answering specific questions comparing:

  - The performance of the programme over time, especially if there have been significant changes in approaches;

  - The performance of the programme across regions, especially if implementation approaches have varied from one region to another.

  - The VFM of specific activities to inform programme design (for example, CLTS campaigns vs. School WASH programmes);

- **Key questions for the analysis:** Any specific VFM question that programme managers would like to see addressed in the analysis will need to be raised and discussed at the start. A manager may be interested in knowing, for example, whether a specific implementation arrangement or the introduction of a new method has impacted on the programme's outcome.

These questions will determine the level of detail at which information needs to be collected and analysis needs to be carried out (for example, whether it is important to collect disaggregated data for different regions). Ability to address these questions will depend on the type of information available and the level of granularity in the data.

Identify benchmarks: To assess the VFM of WASH interventions, programme benchmarks should be identified to compare results and draw stronger conclusions from the analysis, such as if VFM has been comparatively 'good', i.e. better or worse than another programme. To carry out such benchmarking, it is essential to have sufficient variability across programme characteristics in terms of programme design, approach, context etc., so as to be able to assess the impact of such variations in terms of VFM indicators. Variations may relate to the activities set up (school sanitation vs. CLTS), the modality of implementation (through a multilateral or local NGOs) or in terms of the scale of the programme (national vs. regional).

Step 2 – Map out the programme results chain and data sources

Step 2 Summary

- Draw the results chain of the programme: Map out its inputs, outputs, assumed outcomes, actual outcomes etc.

- Identify the non-programme activities and related expenditures that contribute to achieving results.

- Draw up a list of financial and results data to collect and identify possible data sources for each element of the chain. Collect those that are available from secondary sources and through communication with other implementers (through e-mail etc.).

Draw results chain: The team draws the results chain of the programme using the template presented in Figure 1 (Section A.1). It is necessary to define indicators for the inputs, processes, outputs and assumed and actual outcomes of the programme, by main sub-sectors (water, sanitation, hygiene, cross-cutting). The aim is to visualise how the programme generates results. This can be done using the programme logframe, although the wording of the indicators will probably need to be adjusted to fit the results chain, for example to differentiate between outputs and outcomes.

List data to collect: Based on the indicators identified in the results chain the VFM analysis team compiles a list of data to collect on input costs, number of outputs, assumed and sustained actual outcomes.

Collect expenditure data: Expenditure data should be collected for all activities that have contributed to achieving outputs and actual outcomes in a sustainable manner, including relevant activities by actors outside the programme. It should cover financial expenditure and other costs (such as staff time). To facilitate data analysis, costs can be categorised by types of inputs: hardware, direct software support and indirect programme support costs. Consider whether data give an insight into equity issues (e.g. costs disaggregated by beneficiary groups based on gender or poverty levels).

Table 3. Cost categories

Type of costs	Definitions
Direct hardware	Initial capital costs and associated construction related services to put new services in place. Hardware investments include activities such as drilling, installing pumps and pipe systems, building latrines etc., the costs of equipment and labour costs, and the one-off associated 'software' costs for detailed design studies and construction supervision.
Direct software support	Direct support activities associated with community mobilisation related to the outputs: • CLTS campaigns; mobilisation, hygiene promotion • Support and training to service providers
Indirect programme support	Cost of planning and implementing the activities of the programme. This includes the salaries of experts and programme support staff, as well as consultancies contracts, ME studies and audits, trainings of technicians and goods (IT, equipment, etc.). The costs of programme staff or consultants directly engaged with hardware installation or direct software support would be allocated in those categories. In some cases, this may mean estimating the proportion of staff time spent on such activities

Source: Authors

Depending on the scope of the VFM analysis, data can be collected for either or both of the following:

- the initial programme costs, from all financing sources (for example, to estimate the cost-efficiency of the programme);

- the lifecycle costs of investments that contribute to ensuring that outputs and actual outcomes are sustained (for example, to estimate cost-effectiveness of the investment). This will include programme and non-programme costs. It is desirable to include lifecycle costs, but VFM analysis can still be conducted if it is not available.

Cost data can be based on programme expenditure reports. Expenditure data usually need to be re-analysed to allocate amounts to the different activities under review and the type of costs. This is a key component of VFM analysis, especially when programmes do not record costs in a way that allows them to be easily linked to activities and results. This is often the case with government programmes. When such tracking systems are not in place, it is necessary to re-construct the linkages between resources and outputs using allocation keys as presented in the example in Annex 2 Simplified example of VFM analysis. An allocation key is the guide to distributing total expenditure across various outputs. For instance, staff costs will be distributed between water and sanitation outputs based on the percentage of their total time spent working on each of these outputs. (Additional guidance is provided in Step 4.)

Estimating non-programme costs involves looking at all sources of finance that contribute to programme implementation over time, i.e. not only costs from the programme, but including contributions from beneficiaries and government contributions after the end of the programme. Details on the costs involved are provided in Box 1 below. To the extent possible, all of these flows should be captured in the VFM analysis.

Box 1. Capturing external sources of finance over the lifecycle of the investment

To capture external sources of finance, draw a flow chart showing the programme's funding in the context of other sources of funding, distinguishing between the funding flows that come directly from the programme's budget, those that are indirectly related to the programme outputs, and those that are unrelated to the programme's outputs, but may impact sustained actual outcomes from the WASH programme. For instance, funding channelled by the programme to a multilateral agency and then to a community to support CLTS triggering would be treated as a direct financing flow. The payment made by a household to a mason for constructing a latrine would be an indirect financing flow if that occurred as a result of a CLTS campaign undertaken with programme support. Government funding allocated to an NGO building latrines in the same area as the programme, but outside of the programme activities is also an indirect financing flow.

This has been schematically represented in Figure 4 below.

Figure 4. Sources of contributions to achieve a programme's outcomes
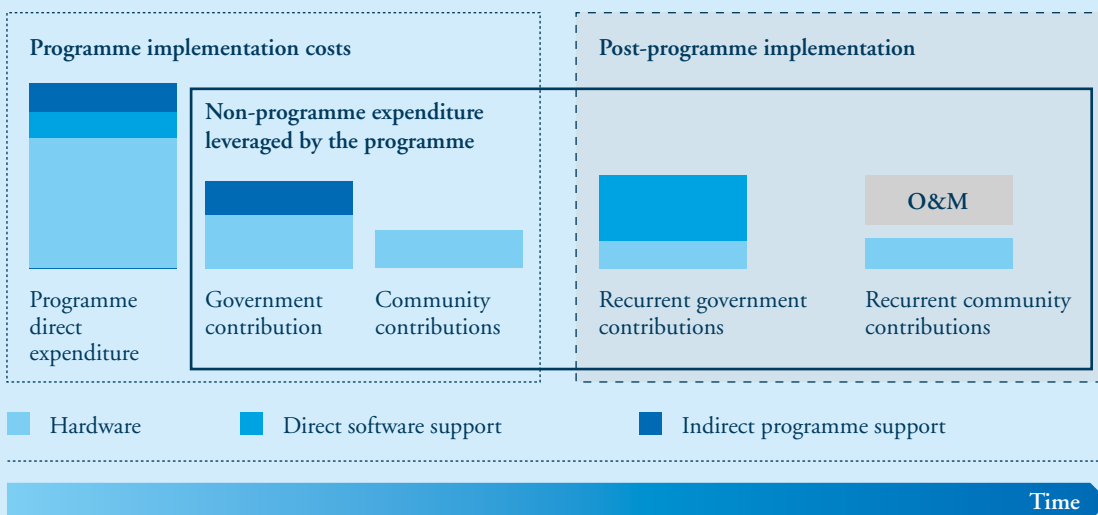
When looking beyond programme implementation for sustainability, one needs to take into account several types of costs, including the operating and maintenance expenditure (commonly referred to as O&M) and the capital maintenance that will be required for large repairs in order to keep the service going. Occasionally, new capital investments (capex) might also be required. The www.ircwash.org/washcost, with funding from the Bill & Melinda Gates Foundation and implemented by IRC, defined a cost typology to refer to such costs which is now widely used in the sector, as follows:

• Capex (capital expenditure): Initial costs of putting new services into place, including "hardware" such as pipes, toilets and pumps and one-off "software" costs such as associated training and consultations.

• Opex (operating and maintenance expenditure): Routine maintenance and operation costs to keep services running (e.g. wages, fuel or any other regular purchases). Operating expenditures is the recurrent (regular, ongoing) spending to provide WASH goods and services: labour, fuel, chemicals, materials, and purchases of any bulk water. Maintenance expenditure is the routine expenditure needed to keep systems running at design performance, but does not include major repairs or renewals that are recognised as not recurrent.

• Capmanex (capital maintenance): Occasional large maintenance costs for the renewal, replacement and rehabilitation of a system that goes beyond routine maintenance to repair and replace equipment, in order to keep systems running. These essential expenditures are required before failure occurs to maintain service levels and need to be planned for.

Source: Authors, based in part on Fonseca et al. 2011. Life-cycle costs approach: costing sustainable service. WASHCost Briefing Note 1a. IRC, The Hague.

In order to ensure sustainability, the costs highlighted in Box 1 above need to be funded. For the purpose of the VFM analysis, it is therefore essential to go back to the funding sources and identify: a) whether or not they are covering those costs and b) how much has been allocated to cover those costs. Who is expected to cover these costs will vary according to the policy within a country. A VFM analysis needs to be based on the actual value for such costs rather than on the expected value. If insufficient funding is being provided, this will generally lead to a reduction in sustained outcome indicators and lower cost-effectiveness.

Table 4 below presents how such long-term costs would typically be covered by different funding sources in a standard WASH rural programme. Such a table would need to be tailored to the circumstances of each country.

Table 4. External sources of finance and life cycle costs

Financing sources	Types of expenditure	Data sources
Central Government expenditure	Direct and indirect support costs: Support to the local institutions implementing the programme, national policy development, capacity building, national education campaigns etc.	WASH ministry budget and financial statements Public expenditure reviews
Local government expenditure	Capex, Opex and Capmanex for assets and services set up by the programme. Direct and indirect support costs: Support to communities implementing the programme, enforcement of rules etc.	Local government budget and financial statements
Other donors	Hardware, direct software and indirect programme support costs for other programmes that contribute to the same outcomes as the programme of interest.	Donor budget and annual reviews documents
Household/community expenditure	Capex, Opex and Capmanex for assets and services set up by the programme (latrine usage, Support to CLTS triggering)	Household surveys
Private sector expenditure	Capex, Opex and Capmanex for assets and services set up by the programme	Private sector companies surveys (local WASH service providers etc.)

Source: Authors

In practice, collecting data on costs funded by parties other than the programme might be complicated because such costs may be inadequately recorded or inaccessible. To allow for comparability, it is essential to clearly state which costs have been collected and which have been estimated because of lack of data.

Financial data should be collected over time, based on the appropriate time variations as identified in Step 1. This can be after or before a change, on an annual or twice yearly basis etc.). When actual expenditure data are not available for such items as household or municipal expenditure, the team will have to rely on average cost estimates per unit of output for Capex, Opex, and on total programme costs for software costs.

Data on outputs, assumed outcomes and sustained actual outcomes need to be collected from programme documents. Some challenges are likely to arise when estimating the number of beneficiaries, as explained in Box 2 below. It is important to clarify in the report how the number of beneficiaries has been calculated.

Box 2. Collecting data on the number of 'beneficiaries'

It can be a challenge to estimate the number of people who benefit from an intervention (often called 'beneficiaries'). Different methods are used, and under this methodology, some methods would give estimates of assumed outcomes and others of sustained actual outcomes, as described in section A.1. The key point is that the number of people who are assumed to have access to the service may not be the same as the people who actually use it. People are likely to collect their water from multiple formal and informal sources at different times of the day and for different purposes; use of a water point is influenced by cost, distance, perception of taste and what alternatives are available.

Three types of information on the number of users or persons with assumed access are common:

- The number of people assumed to have access **per service delivery model.** This describes service by one type of infrastructure, such as a borehole with handpump. Data can be collected on the number of beneficiaries that model is assumed to serve, e.g. 250 people. This is an **assumed outcome,** because in reality the population might be lower or some people may choose not to use the service which is being analysed (e.g. in favour of another which they prefer on the basis of distance, cost etc.)

- The number of people **living in a service area,** all of whom are assumed to have access. Data can be collected on the number of households or people living in a defined service area (such as a community), e.g. 185 people. This is an **assumed outcome,** because in reality some people may choose not to use the service which is being analysed (e.g. in favour of another which they prefer on the basis of distance, cost etc.)

- The number of people **actually using a service,** based on the difference in usage before and after the intervention. Data can be collected through households surveys at baseline and endline, with the increase in usage (e.g. of 'improved' infrastructure) being the key variable. This is an **actual outcome.** It can be called a **sustained actual outcome** if estimated on the basis of additional post-endline data collection as part of post-implementation monitoring. In most cases, such data is not available.

Source: Authors

Identify and collect data: For each of the data items defined above, the team will identify possible data sources and collect those that are available remotely, (e.g. from the internet or by e-mail). Tool 3.2 – Data items to collect and possible data sources in the Annex 3

Toolbox – Toolbox can be used as a reference for possible data sources.

Collate more detailed reports about the programme: Consider whether more detailed data sources are necessary to answer the VFM questions formulated.

Step 3 – Interview stakeholders and collect data

Step 3 Summary

- Engage with key stakeholders, including staff from comparable programmes, to:
  - Explain the objectives and methodology of the VFM study
  - Discuss VFM questions and their relevance
  - Discuss available data sources
  - Identify where data can be collected
  - Discuss ways to overcome missing data and identify other potential interviewees
  - Collect qualitative information to answer the VFM questions—and to gain an in-depth understanding of the programme's objectives, activities, implementation modalities, financing arrangements etc.
- Collect data from stakeholders. Most will not be readily accessible from programme implementers and it will be necessary to go through M&E and Financial Monitoring Systems or to extract data from actual contracts.

The team should meet with stakeholders, conduct field interviews and collect the remaining data. Potential key contacts to interview are identified in Tool 3.2 – Data items to collect and possible data sources in the Annex 3 Toolbox.

Most data will not be available immediately. Getting data will sometimes require going through information systems with programme implementers. Some programme stakeholders may be unwilling to share data outside their programme. Using a senior member of the team to make the approach, explaining the wider benefits to the sector, and making programme staff feel safe that their data will not be misused (e.g. results will be checked before publication) can help towards overcoming this.

The VFM team should seek qualitative answers from stakeholders to facilitate interpretation of indicators. Different aspects will be stressed depending on the exact purpose of the VFM analysis. Table 5 below lists questions to for each indicator, as a guide for interaction with stakeholders.

Table 5. Key qualitative questions for stakeholder interaction on VFM

VFM indicator	Key questions for stakeholders
Economy	• What are the costs per result paid for key inputs (e.g. monthly cost for a staff member/consultant, DSA, daily vehicle hire rate, petrol price per litre, cost of one handpump, of a latrine slab, cost of training one CLTS facilitator, etc.)? • Do they consider they bought inputs of appropriate quality and at the right price? • How do current costs per result compare those originally budgeted for? How do they compare to costs incurred by other organisations implementing similar programmes in the country? • Could the efficiency of procurement processes have affected costs per result? Are unit prices negotiated or the result of a procurement process? What procurement challenges have the implementers experienced?
Efficiency	• How well have the inputs and activities been converted into outputs? • Have the planned number of outputs been achieved, and if not, why not? Was this due to implementation challenges or to other factors, independent of the programme's ability to deliver?
Cost-efficiency	• Have programme implementers sought to estimate the costs per result of providing different types of outputs? • Have programme managers considered data that could illustrate the additional costs associated with achieving the programme's equity objectives? • How much did it cost the programme and how much did it cost in total (i.e. including other parties' expenditure)? Was the programme able to leverage resources from other parties and if so, to what extent?
Effectiveness	• Does the programme collect data on sustained outcomes and/or seek to estimate its own effectiveness indicators? • How effective has the programme been at converting access to WASH services (at the end of the programme) into sustained actual outcomes (e.g. use of services over time)? • Have some groups (e.g. defined by gender, case or poverty level) benefited to a greater or lesser extent than others? • Are the services set up by the programmes sustainable over time?
Cost-effectiveness	• At what cost per beneficiary have the sustained actual outcomes been delivered? • What were the costs to the programme and the overall costs to all relevant parties of delivering these sustained actual outcomes? • Was the programme able to leverage resources from other parties and if so, how much?

The main challenge of VFM analysis is to collect expenditure data in a way that allows data to be linked to the activities performed, or to specific outputs. Box 3 below presents different strategies for collecting cost data related to specific activities implemented by the programme.

Box 3. Alternative strategies for collecting cost data related to specific activities

In the best-case scenario, the programme will have a financial reporting system that tracks costs allocated to activities undertaken. Activity-based cost management has been around in the private sector for more than fifteen years in order to improve management performance and is being increasingly applied in the 'social sectors'.

Several large international organisations or NGOs have adopted this type of cost management systems, but by far the majority in the WASH sector have not yet done so. In particular, WASH programmes implemented by Governments usually do not use such kinds of systems. In such programmes, expenditure is reported according to existing accounting standards and cost classifications. For example, most governments' accounting standards would keep track of inputs by type of inputs (personal, material etc.) but not seek to allocate such inputs to specific activities. As a result, the information that can be extracted from governments' accounting systems would need to be systematically re-analysed in order to allocate costs to activities.

If costs are not already allocated by activity in the programme budget, there are two possible solutions:

- For smaller programmes, data can be collected on costs per result and bills of quantities to allocate the overall programme budget to the different components of the programmes (water, sanitation, hygiene, cross-cutting support activities) and outputs.

- It can be useful to work with the procurement department to obtain more detail on what funds have been spent on, based on the actual contracts for works undertaken (such as drilling contracts or the contracts with the local NGOs in charge of conducting CLTS campaigns). This will require finding, for each type of output, which contracts have been procured, by whom and with what type of contracting party. Contract records will enable the VFM analysis team to allocate expenditure to type of contracts, which can be categorised by type of costs and outputs.

Step 4 – Analyse and interpret data and draft report

Step 4 Summary

- Allocate financial expenditure to outputs, assumed outcomes and actual outcomes and carry out the necessary calculations to derive the key VFM indicators.

- Draft the report, presenting the programme context and activities, the VFM quantitative indicators, qualitative assessment on the programme VFM and the key drivers of VFM. The structure of the draft reports produced during DFID VFM WASH operational research can be used as a reference.

Gather all data into a spreadsheet. It is likely to be easier to develop a purpose-built spreadsheet for each programme, as the structure of the spreadsheets will depend on the data sources used. Data (inputs, outputs, outcomes data etc.) can be arranged within a single sheet.

Programme expenditure data need to be linked to outputs and to assumed and sustained actual outcomes. Indirect costs also need to be related to outputs and outcome, as described in Box 4 below. Annex 2 Simplified example of VFM analysis contains a simplified example of the VFM analysis for a hypothetical programme, to show the use of different calculations and assumptions.

Box 4. Allocating data to activities

Indirect costs are costs that cannot be directly attributed to one specific activity but have an overall supportive role. They are usually incurred by programme management and by head office support, often linked to the overall management of the programme, such as running the country office. Some programmes include these costs in their budgets and others don't. For example, UNICEF budgets always include a mark-up to cover head office indirect costs, but DFID programme budgets do not. The team should identify clearly which indirect costs are included and which have not.

The team will need to estimate the percentage of indirect costs that can be allocated to each of the outputs, so as to calculate a total cost per output. The allocation of indirect costs will be based on an allocation key which will vary with the level of support input provided by the management unit to carry out each activity. This information will necessarily be an estimate derived through interviews with the programme implementers and the allocation itself will therefore also be an estimate.

If activity-based costing is already used to allocate costs in the programme budget, then the team has only to examine the methodology to ensure that the activities to which costs have been allocated can be reconciled with the outputs.

Expenditure related to programme support activities (such as policy support, planning of WASH activities, capacity building and training etc.) can be allocated to an output if they directly contribute to achieving it. Otherwise they can be allocated to "cross-cutting support activities" and linked to their own outputs and sustained actual outcomes. Sustained actual outcomes of cross cutting activities contribute to building an enabling environment. For instance, the training of CLTS facilitators or the planning of a CLTS campaign are activities that are directly linked to the CLTS activity and will contribute to the 'access to sanitation' sustained actual outcome. Developing a national policy for sanitation or training local government staff on the other hand is considered as 'cross-cutting support activities'. Spending on these activities does not contribute directly to increase access to sanitation (i.e. there is no immediate causality between the two), but does contribute indirectly as these activities build the enabling environment that permits access to sanitation. They need to be taken into consideration in the framework.

Establish key VFM indicators: Carry out the calculations to derive the key VFM indicators presented in Section A.1. above.

Draft report: Finally the team drafts the report, interprets the findings and seeks to put them into their context. The report introduces the programme, its context, objectives and key activities. It maps the components of the results chain and the VFM results in terms of economy, efficiency and cost efficiency, effectiveness and cost-effectiveness. Links to examples of VFM studies and outlines can be found on the VFM-WASH website.[4]

These results can be compared with internal trends and external benchmarks that were identified in Step 2. Apart from presenting quantitative results, it is important to analyse the cost-drivers and assess the reasons for variations in VFM indicators, looking at internal programme-related factors and external factors and drivers, so as to be in position to assess whether the programme delivers good or bad VFM and why. VFM analysis is not in itself a full evaluation of how the programme is functioning on the ground and how such functioning could be improved. However, it does need to assess current factors that can increase VFM and how barriers can be addressed. A VFM analysis ideally takes place as part of or in parallel with a more thorough evaluation that would make it easier to identify VFM drivers more precisely.

A strong emphasis on the qualitative elements of the VFM analysis strengthens the findings of the analysis by looking at cost drivers rather than simply at VFM indicators, and by seeking to attribute changes in VFM to specific factors.

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4 Studies and outline reports can be found at http://vfm-wash.org/category/publications/

This analysis will be based on the qualitative interviews conducted in Step 3. It will seek to explain the variations of VFM indicators across years and regions based on internal changes in the programme design, implementation arrangements or approach and external changes (in price of inputs, climatic or political factors that might have had an impact on the programme efficiency). VFM indicators can also be compared across benchmark programmes, making sure that differences between programmes are made explicit. If the benchmark programme has a lower cost per result per output, it does not necessarily mean that it is more cost efficient than the studied programme. The difference could be explained by a variety of factors: geographical differences can result in lower input costs (proximity to main cities, higher water tables, easier implementing conditions etc.). A national government programme is likely to have higher costs for indirect programme support as it will be contributing to the national framework etc. All these explanations need to be made explicitly when comparing VFM indicators across programmes.

The report should include quantitative or qualitative information elucidated about sustainability to this point in time and how factors such as the extent and quality of the software input (e.g. capacity development) are likely to affect future sustainability. The report should specify any equity issues arising from the VFM analysis – e.g. differential cost effectiveness for targeting a specific group of beneficiaries (by gender, casts, poverty levels etc.)

Box 5 below provides a more concrete example of how results from a VFM analysis can be presented and interpreted. They show that indicators need to be put back into the context of the programme and interpreted with qualitative analysis and benchmarks.

Box 5. Example of VFM analysis from the VFM WASH project (Mozambique)

For the PRONASAR programme in Mozambique, we found that the cost per public water point (borehole) built was $23,755. This cost included hardware, software and indirect programme support. The hardware cost alone was $14,606. This is very high in comparison to other African countries. This is due to the high costs in Mozambique in general, which can be explained by the high inflation (23% on average over the period of study), the transport cost to the capital city, the market structure and the lack of private competition.

The comparison with the UNICEF One Million Initiative (OMI), implemented between 2007 and 2013 showed that the average cost per water point of PRONASAR over the period 2012-2014 was higher than the UNICEF average cost (+37%).[5] However, PRONASAR unit cost was only 18% higher when using 2014 as a reference year. This is due to the reduction of the PRONASAR unit cost towards the end of the period.

Cost differences can in part be explained by internal programme factors. First, the procurement and financial management in PRONASAR is weak: Procurement procedures have loopholes and there are fiduciary risks due to weak internal control systems. Moreover, decentralised levels and contractors do not have an incentive to achieve the best possible outcomes. For instance, borehole contractors are paid for poorly sited and dry boreholes so do not have a strong incentive to identify only the most likely sites for drilling.

These comparisons need to be handled with caution, however. Costs might not be comparable between programmes due to differences in the way costs were estimated, the geography and depth of boreholes drilled, and the size and structure of contracts or the timing of the expenditure. Yet, it is interesting to notice that indirect programme support costs are slightly higher for PRONASAR, which is normal as the programme also provides support to the country at national level, and thus national level costs have been allocated to the water points constructed. Direct software support costs to strengthen water committees represent only a small proportion of the total cost of providing access to water. This might have an impact on the sustainability of water points and drive down cost effectiveness.

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5 The average unit cost over this period was calculated and then adjusted to comparable years to PRONASAR. This was done by adjusting the OMI unit cost for inflation using 2010 as base year, as this is the year in which most of the OMI expenditure to water points was made. The average unit cost (in 2012 equivalent prices) was then compared to the PRONASAR average unit cost over 2012-2014. 2012 as used as the reference year as most of PRONASAR expenditure on water points was made that year.

A number of considerations need to be borne in mind when seeking to carry out comparisons as a basis for deepening the analysis of VFM indicators:

Interpreting changes in VFM across time: If trying to estimate a change in VFM across time for the same programme, it is crucial to get additional information to understand the programme's spending cycle. In practice, existing records of costs and results tend not to be sufficiently precise and distortions can be introduced if outputs do not materialise in the same year as the spending on those outputs. This can be because an output such as a small water system takes more than a year to be implemented or because it is realised at the end of one year and paid for in the next. External factors that vary from one year to another (such as inflation or exchange rates) can have a serious impact on costs per result.

There are several ways to address these issues. A better understanding of spending cycles can help in aligning the timing of outputs and of spending flows. Accounting systems have the notion of "work in progress", e.g. for a facility that is in the process of being built but has not yet been commissioned. In such cases, an amount equivalent to the amount of work that has been put into building the facility would be accounted for as an asset. However, VFM analysis extracts data from expenditure records rather than from the balance sheet. It is therefore recommended to make assumptions that all the costs that relate to a specific output are recorded in the year in which the output is commissioned. Indeed, what is important for the VFM analysis is the total cost of the output, rather than the timing in realising the cost. If intra-year cost variations are not a big focus for the analysis, it is preferable to estimate averages across several years so as to eliminate such timing effects so far as possible.

Comparing costs over time also requires adjusting for the impact of inflation, by calculating cost per result both in nominal and real terms. It is preferable to carry out analysis of variations between years in local currency, so as to neutralise the effect of exchange rate variations.

Interpreting VFM data from different countries: Comparisons between programmes in the same country minimise the risks of comparing different contexts, although contextual differences between regions of the same country are sometimes crucially important. In some cases there is value in comparing similar programmes in different countries or cross-country comparisons are the only option. In such cases, it is essential to be mindful of the potential impact of exchange rates on the results. Cross-country comparisons should be neutralised for exchange rate variations, preferably by using PPP exchange rates (that control for variations in purchasing power) alongside nominal exchange rates.

Step 5 – Get feedback, finalise report and communicate

Step 5 Summary

- Collect feedback from programme stakeholders to improve the analysis and fill in gaps in data and analysis.

- Share findings with stakeholders inside and outside the programme.

Collect feedback: It is important to get feedback from programme stakeholders on the draft report, to improve the analysis and fill in data gaps. It is likely that more information will become available when people see the results and how they contribute to managing the programme. Triangulating data will also improve the reliability of the results. This may also be an opportunity to discuss factors that affect sustainability and equity.

Share findings: The team can organise a workshop to share and discuss the findings with stakeholders inside and outside the programme. The study can be of benefit to all stakeholders, as programmes within one country are likely to share similar challenges: the more data on comparable programmes is gathered, the better. This would also contribute to making more institutions familiar with the VFM methodology and will encourage others to apply such analysis to their programmes. Over time, this will increase the number of potential benchmarks, so long as data are shared.

Make recommendations: The team should present results as a basis for formulating two main types of recommendations:

- how internal systems can be improved or modified to allow VFM analysis to be performed in a more routine manner in future;

- how programme design and implementation modalities can be modified in order to improve the programme's performance against VFM indicators.

The report should then be finalised and disseminated.

Annex 1 Glossary

Term	Definition
Allocation key	The guide to distributing total expenditure across various outputs. For instance, staff costs will be distributed between water and sanitation outputs based on the percentage of their total time spent working on each of these outputs.
Assumed actual outcome	The *assumed* outcomes resulting from the outputs, e.g. the number of people assumed to be served by a new water point, based on existing standards and assumptions at country level.
Capital expenditure (Capex), including hardware and software	Initial costs of putting new services into place, including "hardware" such as pipes, toilets and pumps and one-off "software" costs such as associated training and consultations.
Capital maintenance expenditure (Capmanex)	Occasional large maintenance costs for the renewal, replacement and rehabilitation of a system that goes beyond routine maintenance to repair and replace equipment, in order to keep systems running. These essential expenditures are required before failure occurs to maintain service levels and need to be planned for.
Cost-effectiveness	Cost-effectiveness is the cost of achieving intended programme actual outcomes (or impacts). This can be used to compare the costs of alternative ways of producing the same or similar benefits.
Cost-efficiency	Cost-efficiency compares the costs of a (WASH) programme and the number of outputs and/or assumed outcomes reached. Cost efficiency would be expressed as a cost per result per result (unit of output or assumed outcome) generated.
Direct software support	Direct support activities associated with community mobilisation related to the outputs: • CLTS campaigns, mobilisation, hygiene promotion • Support and training to service providers.
Economy	This relates to the price at which inputs are purchased (consultants, supply of goods, transport, training etc.).
Effectiveness	Effectiveness relates to how well outputs from an intervention are converted into sustained actual outcomes. In contrast to outputs, the implementer does not exercise direct control over whether actual outcomes materialise and whether they can be sustained.
Efficiency	Efficiency relates to how well inputs are converted into a specific output, such as the construction of a water point, conducting a CLTS campaign etc. The implementer exercises strong control over the quality and quantity of outputs that are produced.
Equity	Equity is a measure of how far results of WASH programmes are targeted at the poorest and most disadvantage groups, are distributed fairly and reach intended beneficiaries. Equity can be measured in multiple ways, (e.g. by income, gender, regional disparities or social groups such as castes).

Term	Definition
Impact	The longer-term result of the sustained actual outcome, often framed as health or education actual outcomes in WASH programmes, e.g. reduced diarrhoea, increased school attendance
Indirect programme support	Cost of planning and implementing the activities of the programme. This includes the salaries of experts and programme support, as well as consultancies contracts, ME studies and audits, trainings of technicians and goods (IT, equipment, etc.).
Inputs	Resources used, in terms of finance and staff time (capital and labour).
Outputs	The direct deliverables of the project, attributable to the inputs.
Operating and maintenance expenditure (opex)	Routine maintenance and operation costs to keep services running (e.g. wages, fuel or any other regular purchases). Operating expenditures is the recurrent (regular, ongoing) spending to provide WASH goods and services: labour, fuel, chemicals, materials, and purchases of any bulk water. Maintenance expenditure is the routine expenditure needed to keep systems running at design performance, but does not include major repairs or renewals that are recognised as not recurrent.
Sustainability	Sustainability is a measure of whether or not WASH services and good hygiene practices continue to work and deliver benefits over time after the end of the programme.
Sustained actual outcome	The sustained actual outcomes, i.e. the change in poor people's lives, such as the number of new people moving from using an unimproved water point to an improved one. Sustained actual outcomes are based on survey data at different points in time (i.e. 6/12/36 months after an intervention) to capture sustainability.

Annex 2 Simplified example of VFM analysis

This Annex contains a simplified worked example of a typical programme, to show how the method can be applied in practice. This example takes the reader through the steps of the analysis and provides examples of what needs to be done. The figures presented in the table are illustrative only.

An XLS file on our website demonstrates how the calculations work.[6]

Step 1 – Define the scope of the VFM analysis

The illustrative programme used for this example is a water and sanitation programme in a rural area, implemented by an NGO. It has two main components: access to water, which entails of the construction of water points, and access to sanitation, which includes CLTS and hygiene promotion campaigns.

Step 2 – Map out programme results chain and data sources

Table 6 below presents the results chain for this (hypothetical) programme.

Table 6. Overview of the programme results chain

Inputs		Outputs	Assumed outcomes	Sustained actual outcomes	Impacts
Water	Construction of water points Community mobilisation	New water points (WPs) built Water committees set up	Population who gained access to water	Population has access to sustainable water supply at the intended level of service	Reduced health impacts (diarrhoea)
Sanitation	CLTS Hygiene promotion campaigns	Communities triggered	Population who gained access to sanitation: • ODF communities • New latrines built	Population use improved latrines Communities remain ODF	More time available for productive activities

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6 http://vfm-wash.org/how-to-do-vfm-analysis-for-wash-programmes-annex-2-simplified-example-of-vfm-analysis-in-xls

Step 3 – Interview stakeholders and collect data

Collect all data that will be used for the calculation of VFM indicators: data on outputs, assumed outcomes, sustained actual outcomes and impacts (when it exists) as well as expenditure data.

Output data. Data collected from the M&E report are presented in the Table 7.

Table 7. Output and outcome data

	Outputs		Assumed outcomes		Sustained actual outcomes	
Water	25	WPs constructed	6,250	People assumed to have access (number of new WPs * 250)	5,000	new users of improved water (endline users minus baseline users)
Sanitation	25	Triggering completed	7,000	People assumed to be using a basic latrine (total population minus existing users)	3,000	new users of basic sanitation (endline users minus baseline users)

Source: Authors, illustrative example

Sustained actual outcome data. The second step is to gather key baseline and endline data. Such data, which need to be gathered through household surveys, are crucial to estimate effectiveness and cost-effectiveness. Population data are also important for cost-efficiency. Data for this example are shown in Table 8.

Table 8. Key baseline and endline data

Baseline data	Population of communities	10,000
	Average population per community	400
	Baseline survey – improved water coverage	20%
	Baseline survey – basic sanitation coverage	30%
	Existing improved water users	2,000
	Existing basic sanitation users	3,000
Endline data	Endline survey – improved water coverage	70%
	Endline survey – basic sanitation coverage	60%
	post-project – users of improved water supply	7,000
	post-project basic sanitation users	6,000
	increase in users of improved water supply	5,000
	increase in basic sanitation users	3,000

Source: Authors, illustrative example

Expenditure on inputs. Expenditure on activities and outputs (as identified above) needs to be collected. This can be retrieved from financial reports. If an activity-based costing system is not in place, the main effort could typically consist of allocating the reported expenditure lines against cost types, sectors and outputs. The meanings of the codes (known as allocation codes) are presented in Table 9 below.

For sake of simplification, in this example the sector codes have no sub-divisions (just water, sanitation, cross-cutting); in our example each sector contains only one type of output. If there are several outputs within a sector (for instance if we want to track the expenditure on boreholes separately from the expenditure on small water systems), than another layer of output codes would need to be added, to allow for more detailed allocation of expenditure.

Table 9. Allocation key to cost types and outputs

Cost type codes	DH	direct hardware
	DS	direct software
	IPS	indirect programme support
Output codes (sector)	W	water
	S	sanitation
	CC	cross-cutting

Source: Authors, illustrative example

In table 10 below, expenditure lines have been allocated to outputs (by sectors) and type of costs. The example below shows an ideal situation where expenditure is already reported by outputs and activities, rather than by type of inputs (staff, material, etc.). Most often, the expenditure report will need to be reworked and triangulated with other data sources to obtain such a disaggregation of expenditure.

For instance, the example shows that estimates need to be made about how various staff members spent their time on different outputs to allow the relevant staff expenditure to be allocated to the right output.

At the end of the table, costs allocations are summarised in sub totals by different sectors, outputs, and cost type, using the allocation codes.

Table 10. Expenditure data and allocation to outputs and cost types

Expenditure and coding of costs	Expenditure			Cost allocation					
	Actual cost per result	Actual units	Total exp.	Cost type	Output 1	% of spending to output 1	Output 2	% of spending to output 2	Comment on the allocation of IPS
Water									
Drilling boreholes	$4,000	25	$100,000	DH	W	100%			
Installation of handpumps	$850	25	$21,250	DH	W	100%			
Training of WASH committees	$500	25	$12,500	DS	W	100%			
Sub-Total			**$133,750**						
Sanitation									
Training of CLTS promoters	$10,000	1	$10,000	DS			S	100%	
Construction of demonstration latrines	$75	50	$3,750	DH			S	100%	
Sub-Total			**$13,750**						
Staff									
Head of WASH x 1 (15% of time)	$24,000	0.15	$3,600	IPS	W	70%	S	30%	Based on staff time spent by sector/output
WASH Project Coordinator x 1 (100% of time)	$15,000	1	$15,000	IPS	W	70%	S	30%	Based on staff time spent by sector/output
WASH Engineer x 1 (50% of time)	$19,000	0.5	$9,500	DH	W	100%			
M&E Officer x 1 (20% of time)	$12,000	0.2	$2,400	IPS	W	70%	S	30%	Based on staff time spent by sector/output
CLTS promoters x 10 (100% of time)	$5,000	6	$30,000	DS			S	100%	
Sub-Total			**$60,500**						
Other									
Vehicle rent and maintenance	$2,000	5	$10,000	IPS	W	77%	S	23%	Based on the share spending per output on total spending
Vehicle Fuel	$100	120	$12,000	IPS	W	77%	S	23%	Based on the share spending per output on total spending
NGO partner overhead (7% of their contract)	$11,000	1	$11,000	IPS	W	77%	S	23%	Based on the share spending per output on total spending
Sub-Total			**$33,000**						
Sub-Totals									
Direct Costs attributed to water outputs	DH		$130,750						
	DS		$12,500						
Direct Costs attributed to sanitation outputs	DH		$3,750						
	DS		$40,000						
Costs attributed to indirect programme support (IPS)	IPS		$54,000						
Grand Total			**$241,000**						

Source: Authors, illustrative example

The next step is to attribute indirect programme support costs (IPS) to sector outputs. In this example, some expenditure has been allocated based on the time spent by staff on the different outputs and some based on the relative expenditure made to the outputs.

Table 11. Expenditure data and cost allocation

	Total	Attributed IPS	Attributed cost incl. IPS
Water	$143,250	$39,979	$183,229
Sanitation	$43,750	$14,020	$57,771
IPS	$54,000		
Total	**$241,000**	**$54,000**	**$241,000**

Source: Authors, illustrative example

Step 4 – Analyse and interpret data and draft report

Based on the final cost data including attributed IPS, and the output and sustained actual outcome data above, we can calculate indicators of cost-efficiency and cost-effectiveness in Table 12.

Table 12. VFM indicators

|	Sector	Full cost incl. IPS	Outputs Outcomes	VFM indicator	Indicator description
Cost-efficiency (cost per output)	Water	$183,229	25	*$7,329*	Cost per functioning borehole constructed
	Sanitation	$57,771	25	*$2,311*	Cost per community triggered
Cost-efficiency (cost per assumed outcome)	Water	$183,229	6,250	*$29*	Cost per additional person assumed to have access to improved water
	Sanitation	$57,771	7,000	*$8*	Cost per additional person assumed to now be using a basic latrine
Cost-effectiveness (cost per actual sustained outcome)	Water	$183,229	5,000	*$37*	Cost per new user of improved water
	Sanitation	$57,771	3,000	*$19*	Cost per new user of basic latrine

Source: Authors, illustrative example

Figure 5. Cost efficiency indicators, by type of cost
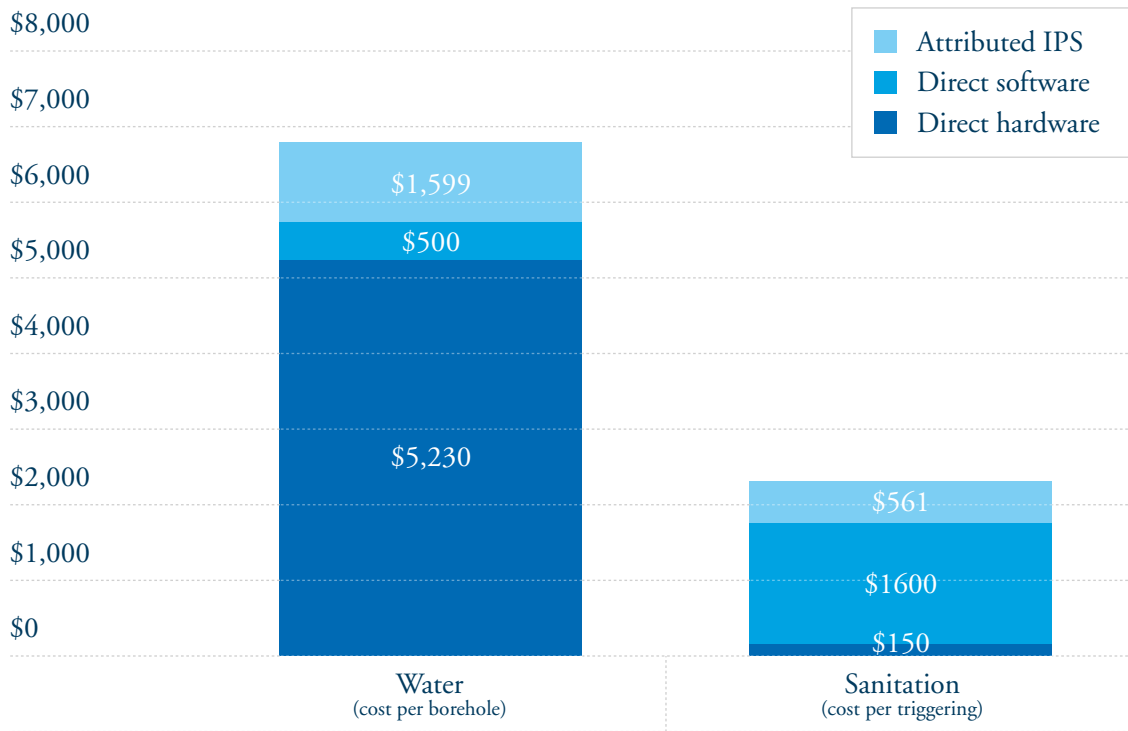
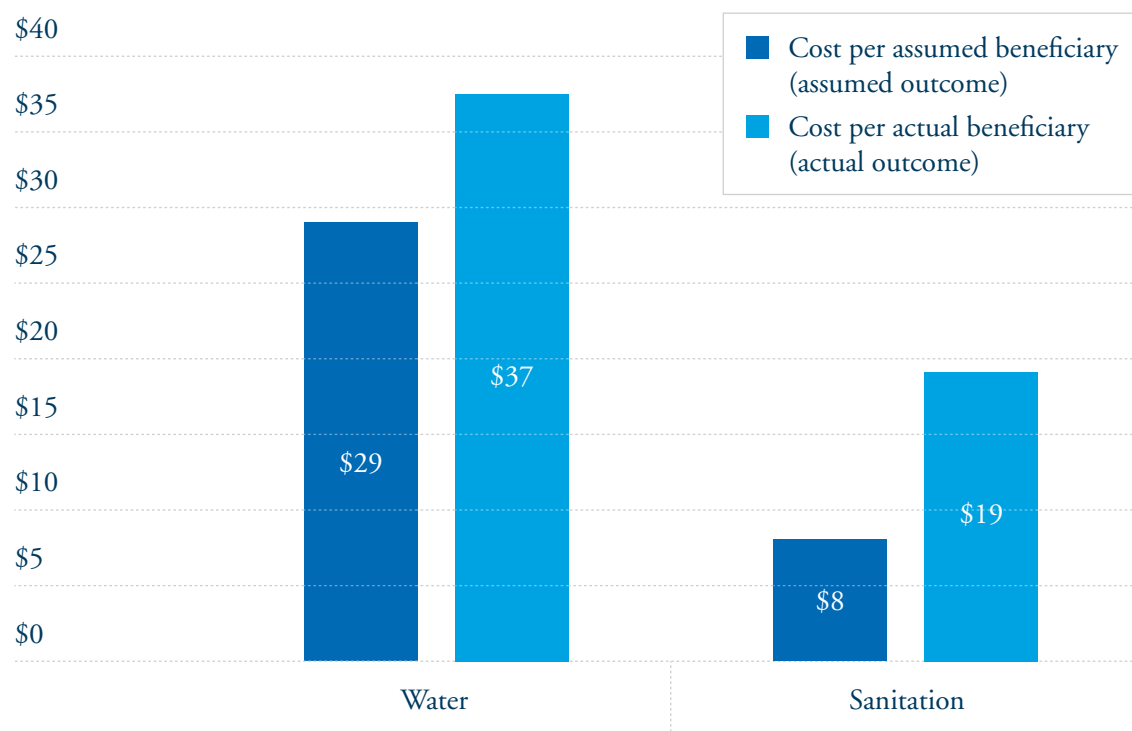Source: Authors, illustrative example

Figure 6. Cost-effectiveness indicators, by type of cost
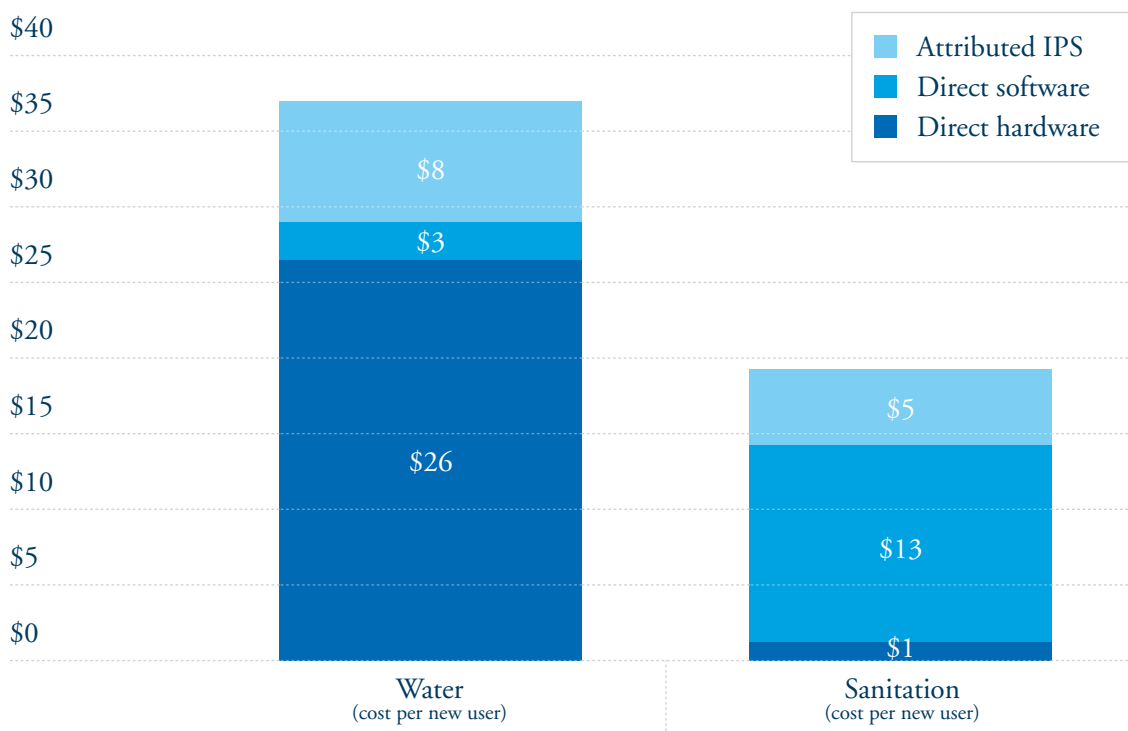
Source: Authors, illustrative example

Figure 7 below shows how costs per beneficiary are higher when considered on the basis of sustained actual outcomes rather than outputs; this is because programme assumptions (e.g. 250 people per water point) do not always hold in reality.

Figure 7. Difference between assumed outcomes and actual outcomes

Source: Authors, illustrative example

Annex 3 Toolbox

Tool 3.1 – The programme description table

Table 3.1.Programme characteristics

Country	Programme Title		
Project ID		Status	
Start Date		End Date	
Budget		Disbursed	
Sector of intervention	[Combination of: water, sanitation, hygiene, cross cutting sector support]		
What is the funding for?	[Procurement of services, general budget support, sectoral budget support]		
Programme area	[Remote rural, rural, urban fringe, or dense urban]		
Programme geographical scale	[Country, region, district or village; (Number to be specified) + indicate (if we know) whether differentiated approaches were adopted in different areas]		
Type of programme	[Humanitarian, transition, development programme]		
Purpose of the intervention	[Main objectives]		
Type of activities financed	[Hardware, software, financing, support activities]		
Programmes activities	[sector activities – see Table 3.2 below]		
Programme implementer (type and name)	[Type of implementer: not for profit organisation, multilateral organisation, private service provider, (specify name(s))]		
Financiers involved	[bilateral/multilateral donor, government and % of the budget etc.]		
Project Summary	[narrative summary: indicate whether the programme was restructured at any stage and if so how]		

Tool 3.2 – Data items to collect and possible data sources

Table 3.2. Summary of information to collect

Key informants	Data items to collect		Documents/ Sources
Donor country Office/ programme implementer	Programme and sector information	• Programme information: history of the sector and programme	• Project appraisal document, business case, financial risk assessment, annual reviews, final review, logframe, external evaluation, operational manual, internal reviews, learning documents
Programme implementer/ Financial manager	Programme expenditure	• Programme expenditure (by activity/ output): budget and actual costs, cost per result, bills of quantities	• Initial budget or yearly budget • Annual financial statements of the programme/ budget execution reports at all level of programme implementation • Audit reports • Supplementary information to determine cost allocation if needed (such as number of staff per department, percentage of their time dedicated to a sub-sector)
Programme implementer/ ME manager	Programme outputs/ assumed outcomes	• Number of outputs achieved (number of water points built, communities reached etc.) • Number of people assumed to gain access to water and sanitation services, by type of services;	• National, regional or local level programme M&E reports, including information recorded from all reporting periods • Baseline and end line survey; existing household surveys or ad hoc survey • Technical audits, on-site review, programme logframe.
Statistics office	Sustained actual outcomes	• Number of people with a sustained access to and use of water and sanitation services	• Sector performance assessment framework
	Impacts	• Health impacts (diarrhoeal diseases)	• Impact evaluations, multiple indicator cluster surveys (MICS)
		• Saving on household spending on health cost per result	• Water point and household survey
		• Time to collect water	• Baseline and end line survey
Government (if co-contributor)	Cost (by activity) of – non-programme expenditure	• Central government costs of implementing the programme and O&M of WASH activities	• Government budget and public expenditure,
		• Regional/ Local government costs of implementing the programme and O&M of WASH activities	• Supplementary information to determine cost allocation if needed (such as number of staff per department, percentage of their time dedicated to a sub-sector)
Communities	Household non-programme expenditure	• Household/communities costs per result for access to WASH and O&M	• Existing household surveys or ad hoc survey • Detailed costing/cost benchmarks for typical household investments
NGOs/ contractors	Cost (by activity) – non-programme expenditure	• NGO/contractor costs for implementing the programme and O&M of WASH activities	• Annual financial statements

Tool 3.3 – Examples of VFM indicators

Table 3.3. VFM indicators by type of WASH activities

Component	Indicator
Cross-cutting	
Economy	• Monthly cost (salary + incidental expenses) for one staff member (distinguishing between senior professional / junior professional)
	• Average daily rate for one consultant (distinguishing between senior consultant / junior consultant)
	• DSA for national staff (excluding accommodation)
	• DSA for national staff (including accommodation)
	• Daily vehicle hire rate
	• Petrol price per litre
	• Cost of one sack of cement
	Allocation of total programme spending to different types of costs (office costs, equipment and vehicles; promotion materials; staff and consultants costs; training and workshops; programme hardware and equipment; travel and transportation costs, management fee etc.)
Water point construction	
Economy	Input costs for key inputs : cost of one handpump (for different types of pumps); costs of drilling boreholes
Efficiency	Percentage of planned water points constructed
	Percentage of boreholes drilled which yield water and can be developed
	Percentage of boreholes yielding water of acceptable standard
Cost-efficiency	Total cost per new water point constructed (disaggregated between hardware, direct software support and IPS costs)
	Total cost per person who (is assumed to have / has actually) gained access to a water point (disaggregated between hardware, direct software support and IPS costs)
Effectiveness	% of water points beneficiaries still using the water point services at programme end
	% of assumed water points beneficiaries actually using the water point at programme end, or x years after (i.e. assumed beneficiaries versus actual new users)
Cost-effectiveness	Total cost per person who has gained access to a water point and uses it (disaggregated between hardware, direct software support and IPS costs)
Small water supply systems (SWSS)	
Economy	Input costs for key inputs
Efficiency	Percentage of planned SWSS constructed
	Rate of household connections to SWSS
Cost-efficiency	Total cost per small water supply system constructed (disaggregated between hardware, direct software support and IPS costs)
	Total cost per person who (is assumed to have / has actually) gained access to a small water supply system (disaggregated between hardware, direct software support and IPS costs)
Effectiveness	% of assumed SWSS beneficiaries actually using the water point at programme end, or x years after (i.e. assumed beneficiaries versus actual new users)

Component	Indicator
Cost-effectiveness	Total cost per person who gained access to a small water supply system and uses it (disaggregated between hardware, direct software support and IPS costs)
Sanitation	
Economy	Input costs for key inputs: • Cost of training one CLTS facilitator • Cost for triggering in one community (CLTS facilitator time and travel) • Cost of a latrine slab • Cost of other key latrine inputs (depending on models: cement ring, vent pipe)
Efficiency	Percentage of planned communities triggered
	ODF conversion rate (Number of ODF communities over the total number of communities triggered)
	Percentages of planned improved latrines built
Cost-efficiency	Total cost per district triggered (disaggregated between hardware, direct software support and IPS costs)
	Total cost per community triggered by CLTS (disaggregated between hardware, direct software support and IPS costs)
	Total cost per habitant triggered by CLTS (disaggregated between hardware, direct software support and IPS costs)
	Total cost per verified ODF community (disaggregated between hardware, direct software support and IPS costs)
	Total cost per person living in an ODF community (disaggregated between hardware, direct software support and IPS costs)
	Total cost per person who gained access to an improved latrine (disaggregated between hardware, direct software support and IPS costs)
Effectiveness	Percentage of communities who remain ODF at programme end, or x years after
	Number of person/households still using their latrine at programme end
Cost-effectiveness	Total cost per person who gained access to an improved latrine and still uses it (disaggregated between hardware, direct software support and IPS costs)
Hygiene	
Economy	Input costs for key inputs: • Costs of printing/distributing BCC training materials • Costs of training one village hygiene promoter • Cost of soap • Cost of hygiene kit distributed (for humanitarian programmes)
Efficiency	Conversion rate from exposure to key messages to ability to recall key messages
Cost-efficiency	Total cost per person able to recall x key messages (disaggregated between hardware, direct software support and IPS costs)
	Total cost per person installing handwashing station (disaggregated between hardware, direct software support and IPS costs)
Effectiveness	% of people with knowledge of key messages observed practicing key hygiene behaviours at critical times
Cost-effectiveness	Cost per person observed practicing key hygiene behaviours at critical times

Component	Indicator
Wash in Schools	
Economy	Input costs for key inputs : • Costs of printing/distributing School Sanitation and Hygiene Education training materials • Costs of hardware inputs (tubewells, handpumps, latrine slabs) • Cost of soap
Efficiency	Conversion rate from exposure to SSHE to take up of school hygiene behaviours Number of schools investing in new toilets/ water points.
Cost-efficiency	Total cost per school exposed to full SSHE package (disaggregated between hardware, direct software support and IPS costs) Total cost per school receiving rehabilitation or new water point or latrines (disaggregated between hardware, direct software support and IPS costs) Total cost per student in a school exposed to full SSHE package (disaggregated between hardware, direct software support and IPS costs) Total cost per student in a school receiving rehabilitation or new water point or latrines (disaggregated between hardware, direct software support and IPS costs)
Effectiveness	% of children retaining key hygiene messages as a result of SSHE % of children in schools with clean functional toilets to which they have access % of children in schools with clean functional water points providing safe water to which they have access
Cost-effectiveness	Cost per child observed practicing key hygiene behaviours at critical times in school

Notes

VFM-WASH

Improving Value for Money and sustainability in WASH programmes