



Diagnostic Review Report

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Department for International Development (DFID)
Technical and Managerial Support for Strengthening the Monitoring
and Evaluation (M&E) system of the One WaSH National Programme
(OWNP) of Ethiopia, and for Conducting an Impact Evaluation

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Coffey International Development Ltd

The Malthouse 1 Northfield Road Reading Berkshire RG1 8AH United Kingdom
T (+44) (0) 1189 566 066 F (+44) (0) 1189 576 066 www.coffey.com
Registered Office: 1 Northfield Road Reading Berkshire RG1 8AH United Kingdom
Registered in England No. 3799145 Vat Number: GB 724 5309 45

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Project Directors: Dr Robina Shaheen, Richard Hooper

Signature:  Dr. Robina Shaheen



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Abbreviations and Acronyms

ADMINOGID	Unique Identifier for Administrative Regions
AFDB	African Development Bank
API	Application Programming Interface
BoFED	Bureau of Finance and Economic Development
CDF	Community Development Fund
CCRDA	Christian Relief and development Association
CFT	Community Facilitation Team
CLTSH	Community Led Total Sanitation & Hygiene
CMP	Community Managed Project
COWaSH	Community-Led Accelerated Water, Sanitation and Hygiene Project
CSA	Central Statistics Agency
CWA	Consolidated WaSH Account
DFID	Department for International Development
DHS	Demographic Health Survey
DP	Development Partners
EMIS	Education management Information System
ETB	Ethiopian Birr
ESDP	Education Sector Development Plan
GPS	Global Positioning System
GTP	Growth & Transformation Plan
HAD	Health Development Army
HEW	Health Extension Worker
HH	Household
HMIS	Health Management Information System
HSDP	Health Sector Development Plan
IBEX	IBEX
ICT	Information and Communication Technology
ICRC	International Committee of the Red Cross

ABBREVIATIONS AND ACRONYMS / DIAGNOSTIC REVIEW REPORT

IOCR	Intelligent Optical Character Recognition
IRC	IRC
JMP	Joint Monitoring Programme
JTR	Joint Technical Review
KDC	Kebele Development Committee
KPI	Key Performance Indicators
KWT	Kebele WaSH Team
M&E	Monitoring & Evaluation
MDG	Millennium Development Goal
MIS	Management Information Systems
MoE	Ministry of Education
MoFED	Ministry of Finance & Economic Development
MoH	Ministry of Health
MOU	Memorandum of Understanding
MoWIE	Ministry of Water Irrigation & Energy
MSF	Multi-Stakeholder Forum
NGO	Non-governmental Organisation
NWCO	National WaSH Coordination Office
NWI	National Wash Inventory
NWSC	National Wash Steering Committee
NWTT	National WaSH Technical Team
O&M	Operation & Maintenance
PBS3	Promoting Basic Services Phase III
POM	Programme Operations Manual
PSNP	Productive Safety Net Programme
PUT	Professionals United Together
RALS	Rapid Assessment of Learning Spaces
RDBMS	Relational Database Management System
RWCos	Regional WaSH Coordination Offices
SNNPR	Southern Nations, Nationalities, and Peoples' Region

ABBREVIATIONS AND ACRONYMS / DIAGNOSTIC REVIEW REPORT

TWB	Town Water Board
TWTT	Town WASH Technical Team
UNDAF	United Nations Development Assistance Framework
UNICEF	United Nations Children's Fund
USAID	United State Agency for International Development
UTM	Universal Transverse Mercator
WaSH	Water, Sanitation & Hygiene
WASHCO	WaSH Committee (community level)
WB	World Bank
WDC	Woreda Development Committee
WHO	World Health Organisation
WIF	WaSH Implementation Framework
WMP	Woreda Managed Project
WSF	Water and Sanitation Forum
WSP	Water and Sanitation Program
WWT	Woreda WaSH Team
ZWCO	Zonal WaSh Coordination Office

Contents

Tasks 1 and 3	Executive Summary (Tasks 1, 3)	
	1. Background	1
	2. Scope and structure	1
	3. Methodology	2
	4. Overview of OWNP	6
	5. Task 1: Strengthening of WaSH M&E system	9
	6. Task 3: Dissemination and use of M&E reports	38
Task 2	Executive Summary (Task 2)	
	7. Background	41
	8. Methodology	41
	9. Task 2: Impact evaluation	43
	10. Proposed evaluation approach	64
Annexes	Annex 1: List of references	67
	Annex 2: List of stakeholders consulted	69
	Annex 3: WaSH M&E design principles	70
	Annex 4: WaSH M&E stakeholder initiatives	72
	Annex 5: Design-reality gap framework	79



Tasks 1 & 3

Task 1: Strengthening WaSH M&E System

Task 3: Dissemination and Use of M&E Report

Executive Summary (Tasks 1 and 3)

The ambitious One WaSH National Programme (OWNP) needs to be able to demonstrate and communicate its results, with sound evidence and analysis being used to drive improved programme implementation, improve delivery of services at all levels and encourage further programme investments.

This report provides a diagnosis of the existing WaSH Monitoring & Evaluation system(s) in Ethiopia - a rapid snapshot of the current situation - and has been undertaken in relation to the proposed OOWNP M&E framework. It includes review of the current WaSH sector governance with respect to M&E, critical WaSH processes such as local operations (service delivery), reporting and planning, and M&E systems being used or under development by both government and non-government actors.

This report is based on desk review of key documents and interviews with key stakeholders. The information gathered has been analysed against the key M&E principles and the Design-Reality Gap (DRG) framework to provide an understanding of the current state of WaSH M&E in relation to OOWNP. This has enabled identification of key gaps in existing systems, structures (including stakeholders) and processes. The report identifies gaps and key areas that will be addressed by the enhanced M&E framework. These gaps will be confirmed or revisited during subsequent field visits and areas for strengthening identified as part of the M&E design process.

The key findings emerging from this review are described in the following sections.

Existing WaSH M&E Governance

The OOWNP is a challenging multi-stakeholder programme to report on. It involves multiple ministries and levels, and its organs and coordination mechanisms are generally new, not yet fully established and/or relatively weak. Water, Sanitation and Hygiene are problematic to integrate because of government processes which emphasise a vertical reporting approach within the line ministries. Horizontal coordination is therefore critical for integrated WaSH reporting and planning. Some critical structures to enable this such as the Regional WaSH Coordination Offices (RWCOs), with staffing from all the four sectors, are not yet fully in place. This means that Project Management Units and their assigned staff, from the implementing ministries, partly fulfil their role.

Cooperation between M&E and IT units and alignment of data from the different MIS systems across the WaSH sectors is currently weak, and hampers efforts to produce WaSH sector wide reporting e.g. to combine health data on sanitation and education data on school WaSH with water sector data on rural and urban water supply. Ministries do not yet cooperate sufficiently to ensure data sets are complementary and to avoid overlap.

While there are not yet ideal conditions for the consolidation of data and production of integrated WaSH reports, there is potential that support to develop integrated reporting will help to strengthen the links between the ministries implementing the OOWNP as well as demonstrating overall achievements in water, sanitation and hygiene by all parties.

At federal level, links between the four ministries are gradually being strengthened as RWCO capacity is increased. However, there is not always a good understanding of the OOWNP beyond the assigned focal persons which will hinder the development of an integrated or coordinated M&E system. Awareness and ownership of the OOWNP objectives, and the need for coordination, sharing of data and integrated reporting, will need to be developed and data sharing agreements developed between OOWNP partners.

Responsibilities for planning and reporting are typically fragmented, reflecting the complex financing arrangements in WaSH sectors and the many different organisations, departments, offices, processes, sub-processes and case teams involved. Fragmented responsibilities may be due to the many different funding modalities, for example in rural WaSH these may include block grant, consolidated WaSH account, bilateral programmes, development and humanitarian NGO projects, and urban water may involve both loan and grant funding.

A further challenge is presented by the decentralised nature of the state. Regions and woredas especially have substantial powers and a strong stake in what data shows. A typical gap (affecting financial expenditure data for example) is that as data flows up the system it loses much value due to aggregation at the different levels (regions reporting consolidated woreda-data to the federal level for example). This vertical planning and reporting also tends to emphasise donor and/or financing-based needs to satisfy "Fund Replenishment Requirements."

There are established governance arrangements to link NGO reporting to the OOWNP such as the consolidated reporting of the Christian Relief and Development Association (CCRDA) Water and Sanitation Forum, in addition to the agreement-related reporting requirements on NGOs to report to Finance and Economic Development at woreda, region or federal level. Efforts are also underway to strengthen this reporting.

Strong links have not yet been made to the National Statistical System led by the Central Statistical Agency (CSA) and there appears to be potential for wider use of household survey data within the OOWNP if links are strengthened.

Over time the WaSH sectors are intended to gradually move towards 'one plan, one budget, and one report' reducing the administrative and reporting burden on critical staff and supporting greater efficiency. However, the existing situation is fragmented and complex with numerous plans, financing channels and reports across the WaSH sectors. M&E has a critical role to play in supporting further sector harmonisation and alignment. The expectation is that improved M&E will help to facilitate improved information flows and support coordination, with the OOWNP being able to more quickly monitor, evaluate and communicate its successes and failures.

Existing WaSH M&E Information Systems

There are a wealth of existing systems to build on and many experiences to learn from. There are several national systems, the WaSH M&E MIS, HMIS and EMIS, that are intended to become part of or feed into the OOWNP MIS together with financial reporting through MoFED's IBEX system. The different federal management information systems and the parallel decentralised approaches to WaSH monitoring can together be considered as an emerging OOWNP MIS.

MIS systems at national level are currently more strongly developed within the education, health and finance sectors. The water sector's efforts to develop a WaSH MIS have not reached the same level of implementation but there is considerable monitoring related innovation within the sector. Multi-level pilots such as those supported by CoWASH/CMP, ICRC, and WaterAid also show potential and each provide important lessons on how to roll out a nationally decentralised but coordinated OOWNP MIS.

The HMIS and EMIS offer additional opportunities and capacity to learn and reflect on the implementation of a national OOWNP MIS across the country based on reporting processes.

The section below provides key findings from a comparison across the systems, using an Adapted Design-Reality Gap framework (refer to Section 3 for details of this framework), and in relation to a federal and decentralised OOWNP MIS.

Information

The data stores and the data flows of the various systems assessed could be aligned to the extent that they have a minimal level of compatibility which is considered important for interoperability between the existing management information systems. Currently there are no shared identifiers across the systems. In some cases, the CSA naming and identification conventions are used as part of an identifier system but they are not consistently used and are subject to frequent changes. The various systems have different ways of defining water and sanitation parameters, however the clearest replicable parameters have been the NWI parameters and indicators, although these are not aligned with the health and education MIS. Most of the existing systems have operated in silos and data collection, analysis and dissemination is on an ad-hoc basis without tracking changes over a single record over time.

Technology

Currently the main technology used across the systems, with the most frequent reporting and decentralised processes, is paper-based. ICT systems are being gradually introduced and most strongly at regional and federal level. Several approaches are being trialled from server-based databases to Access Databases to web-based. In all cases, MS Excel sheets are very prevalent at both federal and regional levels and seem to be the de facto method for exchanging data. Paper and MS Excel based systems have offered government institutions a greater level of configurability and autonomy than externally produced tools and at an affordable cost. However the database systems have suffered from either a lack of use, maintenance and/or have depended on project-based resources for continuing operation. Lack of woreda capacity to use Excel is identified as one of the key barriers to wider adoption of information technology.

Mobile data collection tools for WaSH have been trialled by some NGOs and there has been one large scale exercise during the 2010 NWI Somali Region data collection with reported improvements in quality and speed. Data security and user security seem to be secondary concerns at the moment as most data is not yet in use.

Processes

Most data collection in the sector can be divided into a spectrum of two different styles of data collection, aggregation, analysis and dissemination. The first is ad-hoc baseline and/or inventory updating efforts and the second style is based on performance management and reporting responsibilities. This has been strongest in the EMIS and HMIS where there are many existing institutions at local level with clear reporting requirements. In general regions have been key actors and often determine the reporting priorities based on their interpretation of national policies and their roles and responsibilities.

Objectives and values

In terms of the localisation of technology and familiarity with technology, there is a clear trend in which paper and Amharic language tools are used at local level and English seems to be preferred from woreda level up. Smart phones are increasingly used by staff in woredas and this is making it quite easy to train staff in the use of mobile data collection tools such as in the Somali region.

Staffing and skills

Regular training has been a central part of all the MIS currently in use and as ICT systems are introduced, skills will need to be transferred to use and maintain the tools. There is still a significant barrier to the introduction of ICT tools and their maintenance at woreda level and below due to the lack of skills and familiarity with ICT tools.

Management systems and structures

The ownership of different systems is with different ministries, and there are also different requirements in regions due to the decentralised nature of the Ethiopian government. This presents a challenge to integration of data and information and combined reporting. In some cases, it has been development partners and/or NGOs that have initiated new systems and this may pose sustainability challenges.

Other resources

While the 2010/11 NWI has perhaps provided a relatively consistent data set based on clearly understood parameters and indicators, it did so at a very high cost and could not report results until two years after data collection. The benefit of the exercise has been in creating a common data set that is well understood and it has provided a learning experience for various data collection initiatives in the sector.

While this diagnostic could not easily find the costs related to the HMIS and EMIS because of their decentralised reporting responsibilities and resource allocation, it is clear that this style of MIS, based on reporting responsibilities, can help distribute the data collection burden and accomplish a high frequency of data updates. Both still have significant information gaps but the fact that the data can be used at local level, even if it is not possible to aggregate in regions and at federal level, is a strong advantage of this system over only a census-style data collection.

Existing WaSH Data

Most M&E efforts have failed to make a clear link between the decisions that need to be taken and the data needed. There is a tendency (a) to collect excessive data, (b) to inadequately use existing data, (c) to have an absence or lack of capacity and systems to analyse, interpret and respond to data collected at the appropriate levels, in particular at the woreda level, and (d) to have weak standard processes, forms and procedures for using data.

The diagnostic review findings indicate that there is relatively little knowledge about the data available within the OWNPN partner ministries, the Central Statistical Agency or the National WaSH Inventory and/or sharing of relevant information across ministries. There also appears to be duplication in the data collected as part of the (to date one-off) NWI and that collected by other ministries such as the Ministry of Health (MoH) and the Ministry of Education (MoE).

It has also been found that there are high expectations for what data can do and strong interests in having access to data (such as the NWI). This is also currently reflected in the high level of interest in water-point mapping data

with expectations that monitoring can lead to improvements in accountability and sustainability for example. A key gap though is the limited access and actual use of existing data, as opposed to high level of interest in new data collection initiatives.

The frequency of data collection across the systems varies with HMIS and EMIS identified as examples of systems that are regularly being updated with information flowing from community / health centre / school level into a common database and using existing government reporting mechanisms. In water, a lack of regular updating is limiting the potential benefits of data collected in the NWI.

With respect to the OWNP KPIs there are some critical gaps for example with respect to monitoring functionality, quality, institutions, equity, gender and finance.

The reliability of data is often weak or contested and there are no clear processes to clean and validate data.

Existing WaSH Reporting

OWNP requires a range of M&E approaches and systems to cover physical and financial reporting against inputs, outputs, outcomes and impacts. There are many existing monitoring systems, reporting processes and surveys that capture considerable quantities of data. However, the quality is sometimes poor and turning that data into information and knowledge is more complex and not receiving sufficient attention. Challenges include differences in indicators and definitions, and loss of data dimensions as it is aggregated from local to higher levels.

OWNP reporting currently involves a mix of sector performance monitoring, led by sector line ministries, nationally representative household surveys undertaken by the Central Statistical Agency and impact evaluation or special studies to address the range of indicators required by the OWNP. There has been relatively little use of impact evaluation or household survey data in the sector to date. Health and Education reporting systems, and the linked MIS systems, are more geared to routine reporting processes, mainly paper based but with ICT systems at different levels of introduction. The water sector has not yet linked its routine reporting systems to an operational MIS system, but has made significant progress in establishing a nationwide inventory of the main sector assets.

1 Background

DFID engaged the Coffey International Development and IRC consortium to provide technical and managerial support to the One WaSH National Programme (OWNP) in monitoring and evaluation (M&E) and to undertake an impact evaluation. Tasks over a four year period are related to three main areas: strengthening and coordinating M&E systems across the WaSH sectors (Task 1- led by IRC), promoting dissemination and use of WaSH data (Task 3 - also led by IRC), and undertaking an impact evaluation of the nationwide OOWNP (Task 2 - led by Coffey).

Consultancy support to the National WaSH Coordination Office (NWCO) began in March 2015, and this review - after two months - is the first output of the consulting team. This part of the diagnostic review report is related to tasks 1 and 3 only and has been prepared by IRC. The other part of the diagnostic review report is related to task 2 only and has been prepared by Coffey.

It is important to note that the report is structured in this way to comply with DFID requirements of independence between task 2 (impact evaluation) and tasks 1 and 3 (M&E support).

2 Scope and Structure

This review provides an 'As-Is' assessment of the existing WaSH M&E system(s) in Ethiopia. Within the context of the OOWNP M&E framework, this includes:

- Review of existing WaSH M&E systems, their related governance structures, the data generated and its use;
- Review of main work undertaken so far by others on WaSH related M&E; and
- Mapping and analysis of key stakeholder requirements and interests in WaSH M&E.

The review identifies the key gaps and challenges in WaSH M&E and will be used as the basis and guide to develop a WaSH M&E system enhancement plan. These gaps will be confirmed or revisited during subsequent field visits and further stakeholder consultations and areas for strengthening will be identified as part of the M&E design process.

The review does not make recommendations for the design of a strengthened M&E system for the OOWNP. The remainder of the inception period (May-September 2015) will focus on the design of an enhanced M&E system, as well as developing a data dissemination strategy.

The report is structured as follows:

The One WaSH National Program (objectives, characteristics and developments)

Task 1: Strengthening the WaSH M&E System

- Review of existing WaSH M&E governance
- Review of existing WaSH M&E information systems
- Review of current WaSH data sources and periodicity
- Comparison of current M&E environment within OOWNP

Task 3: Dissemination and Use of M&E Reports

- Stakeholder analysis of OOWNP
- WaSH reporting
- OOWNP reporting
- Reporting linked to planning

The sections above focus on stakeholders (people), their information needs, use of current data (processes) and M&E data flows, reporting and technology (systems) to understand the current state of WaSH M&E in relation to OWNPN. Throughout the report we discuss existing gaps which will be used as a basis to guide the development of an enhanced M&E system.

3 Methodology

This diagnostic report is based upon desk review of key documents and interviews with key stakeholders. Information was collected during two visits to Ethiopia, undertaken in March and April 2015. A list of the organisations that were consulted or provided information for this review and documents reviewed is included in Annex 2.

The diagnostic review will be supplemented with data collected from the regions during the preparation of the inception report to provide further understanding of (a) governance arrangements and their implications for WaSH M&E, (b) capacity in terms of staffing and skills as well as (c) hardware (availability of GPS devices, smartphones and computers) and other related issues that may emerge. Being able to obtain a comprehensive understanding of the actual situation will be important for the preparation of a realistic M&E enhancement framework and plan and subsequently for the operationalisation of the system.

The information gathered was analysed using an adapted 'Design- Reality Gap Framework' and design principles of an M&E system (refer to Annex 3 and Annex 5) to compare how M&E systems in WaSH have been implemented against stated aims.

The Design-Reality Gap (DRG) framework is a cross-cutting and multi-disciplinary framework that can provide a basis for the assessment of technical, social and financial parameters associated with the use and sustainability of monitoring tools. Numerous studies have shown high rates of failure of information systems in both industrialised and developing countries. To address the high rates of failure, Richard Heeks developed the Design-Reality Gap model to score implementation (Heeks, 2002; Bass and Heeks, 2011). It measures the fit of a particular information system with real processes based on the dimensions shown in Table 1.

Table 1: Design-Reality Gap Framework

Assessment Parameters	Area of Focus	Questions on
Information	Data stores & data flows	indicators, parameters, user information, frequency of data collection, coverage of data, scale, collection & access, representativeness, versioning, conflict resolution and authenticity
Technology	Hardware & software	interoperability, configuration, user interface, data & user security, power, maintenance & space requirements and appliance security
Processes	Activities of users and others	access, administration, submission, management, analysis, reports, dissemination, making changes, ease of use and validation
Objectives & Values	Culture & politics	familiarity, ownership of data & technologies, willingness to share, openness to validation, alignment, language, localisation & scripts
Staffing & Skills	Quantitative & qualitative competencies	competency in training, managing users & data, adaptation, skills, cleaning & sampling
Management	Systems & structures	ownership, responsibilities, administration, processes, strategy, dissemination, turnover, support, planning,

		technical requirements and capabilities
Resources	Time & money	cost & finance of installation & extension, operation & training, technical support, field work & validation

Source: Hawari and Heeks, 2010.

The DRG approach can be useful at critical junctures in revealing the level of investment required in both people and technology (Dickinson and Bostoen, 2013). While the approach breaks up systems into different components, it will not necessarily look at the interaction between these components and the effect of these interactions on system success. In order to overcome this, the initial analysis of each component is further disaggregated into more detailed sub-components and then results are analysed with stakeholders to identify interactions and a whole systems perspective.

4 Overview of One WaSH National Programme (OWNP)

4.1 OWNP M&E objectives: a tool for harmonisation, alignment and effectiveness

The OWNP needs to be able to demonstrate and communicate its results, with sound evidence and analysis being used to drive improved programme implementation and to ensure further programme investments.

Over time the WaSH sectors are intended to gradually move towards 'one plan, one budget, and one report' reducing the administrative and reporting burden on critical staff and supporting greater efficiency. However, as we discuss in this report the existing situation is fragmented and complex with numerous plans, financing channels and reports across the WaSH sectors.

OWNP M&E has a critical role to play in supporting further sector harmonisation and alignment. The expectation is that improved M&E will help to facilitate improved information flows and support coordination, with the OWNP being able to quickly monitor, evaluate and communicate its successes and failures.

4.2 OWNP characteristics

Some key characteristics of the OWNP – all relevant to the task of monitoring and evaluating its performance – include:

Scale: The OWNP is a sector-wide approach to WaSH. The total planned programme involves around 2 billion USD which is intended to be invested over a seven year period (2013-2020).

Comprehensive nature: The OWNP aims to improve the health and well-being of communities in rural and urban areas by increasing equitable and sustainable access to water supply and sanitation and the adoption of good hygiene practices. It combines a comprehensive range of water, sanitation and hygiene interventions that include capital investments to extend first-time access to water and sanitation as well as investments focused on developing the enabling environment, building capacity, ensuring the sustainability of service delivery, and behavioural change.

Multi-sectoral, multi-agency and multi-level actors and activities: The OWNP brings together four key government ministries and their related sectors to modernise the way water, sanitation and hygiene services are delivered to people. It combines the efforts of the Ministry of Water, Irrigation and Energy (MoWIE) (lead by its Water and Sanitation Supply Directorate), Ministry of Health (MoH), Ministry of Education (MoE) and the Ministry of Finance & Economic Development (MoFED). The programme also brings together government, development partner and Non-governmental Organisations (NGO) activities in WaSH into one coordinated programme. Ethiopia has a decentralised administration and the OWNP spans activities at household, community, *kebele*, *woreda*, zone¹, region and federal levels.

Complex financing arrangements: Activities within the OWNP are funded through a wide variety of government, bilateral and NGO investments that are channelled in 3 main ways. Channel 1a involves public finance from the government treasury that is allocated to regions and *woredas* through the block grant. 'On-budget' development assistance flows (special purpose grants) go through Channel 1 b from the treasury to ministries, regions and selected *woredas*. The Consolidated WaSH Account which pools World Bank, DFID, AfDB, and UNICEF funding is now the major funding of this type which supports part of the OWNP and is a critical effort towards harmonising financing, and provides an impetus for integrated reporting with its focus on all WaSH components. Other special purpose programmes that partially invest in WaSH include Promoting Basic Services Phase III (PBS3) and the Productive Safety Net Programme (PSNP) which mainly focuses on food security. Bilateral assistance and most UN agency investments flow through Channel 2 to ministries or sector bureaux at regional level through programme implementation agreements. Channel 3 investments by NGOs (including Emergency WaSH activities) are off-budget.

¹ This level is not present in all regions

Flexible and evolving: The OWP was developed during the first phase of the Growth and Transformation Programme (GTPI) guided by Universal Access Plan and the related Millennium Development Goals. At the time of writing, the second Growth and Transformation Programme (GTPII) was under formulation and globally the Sustainable Development Goals are in the process of being developed. Both processes have the potential to ‘move the goalposts’ from the national and global perspectives requiring M&E of the OWP to be flexible and able to accommodate revised targets and indicators. The proposed GTPII indicators for example include improved service standards for rural and urban water supply and additional targets such as those for wastewater treatment.

4.3 OWP M&E developments

The design of M&E for the OWP should be built on the achievements and the lessons learned from the past. Table 2 illustrates the developments in the WaSH sector and identifies some key M&E related events and initiatives. Considerable investments have been made, new systems have been designed and commissioned, baseline data has been collected and a wide range of tools have been used by different stakeholders, but the efforts made so far have not yet resulted in a mature M&E system (that could compare well against the principles identified in the next section). There is not yet a comprehensive system for regular and routine data collection across water supply, sanitation and hygiene to inform decisions at different levels and to which sector stakeholders can align.

Table 2: Timeline of key developments in WaSH M&E

Year	Key Development
2006	<ul style="list-style-type: none"> MoU signed between Ministries of Water Resources (now Ministry of Water, Irrigation and Energy), Health and Education recognised multi-sectoral nature of WaSH. First WaSH joint sector review and first WaSH Multi-Stakeholder Forum (with agreed sector undertakings)
2007	<ul style="list-style-type: none"> WaSH M&E Framework and Manual (Version 1.0) developed with full suite of instruments and formats
2008	<ul style="list-style-type: none"> International tender launched for consultants to develop WaSH M&E Management Information System (MIS) (awarded to Professionals United Together (PUT) consultants with work starting in 2010)
2010/11	<ul style="list-style-type: none"> National WaSH Inventory (NWI) established with first data collection across all regions (except Somali)
2013	<ul style="list-style-type: none"> Results of NWI published leading to reduction in national coverage estimates One WaSH National Programme officially launched (one plan, one budget, one report) WaSH Implementation Framework (WIF) launched
2014	<ul style="list-style-type: none"> National WaSH Inventory completed in Somali region using mobile data collection (GoE, UNICEF, Akvo) Consolidated WaSH Account programme launched (with funding from WB, DFID, AfDB and UNICEF)
2015	<ul style="list-style-type: none"> Household level data (forms 4 and 5) from NWI 2010/11 approved by Central Statistical Agency (CSA) as official data and for use by UNICEF/ WHO Joint Monitoring Programme (JMP) Ethiopia recognised to have met Millennium Development Goal (MDG) target for water (57% coverage) by JMP, but missed the sanitation target OWNP M&E support team established

The OWNP Programme Document lists 17 key performance indicators (KPIs). There is also a more expansive OWNP results framework that includes 63 indicators.

An initial analysis is included of the existing data sources in relation to the OWNP KPIs in the Programme Operational Manual of CWA (refer to Table 4). This analysis indicates:

- The importance of a mix of sector performance monitoring, nationally representative household surveys undertaken by the Central Statistical Agency and impact evaluation or special studies to address the range of indicators required by the OWNP.
- There are critical gaps for example with respect to monitoring functionality, quality, institutions, equity, gender and finance.

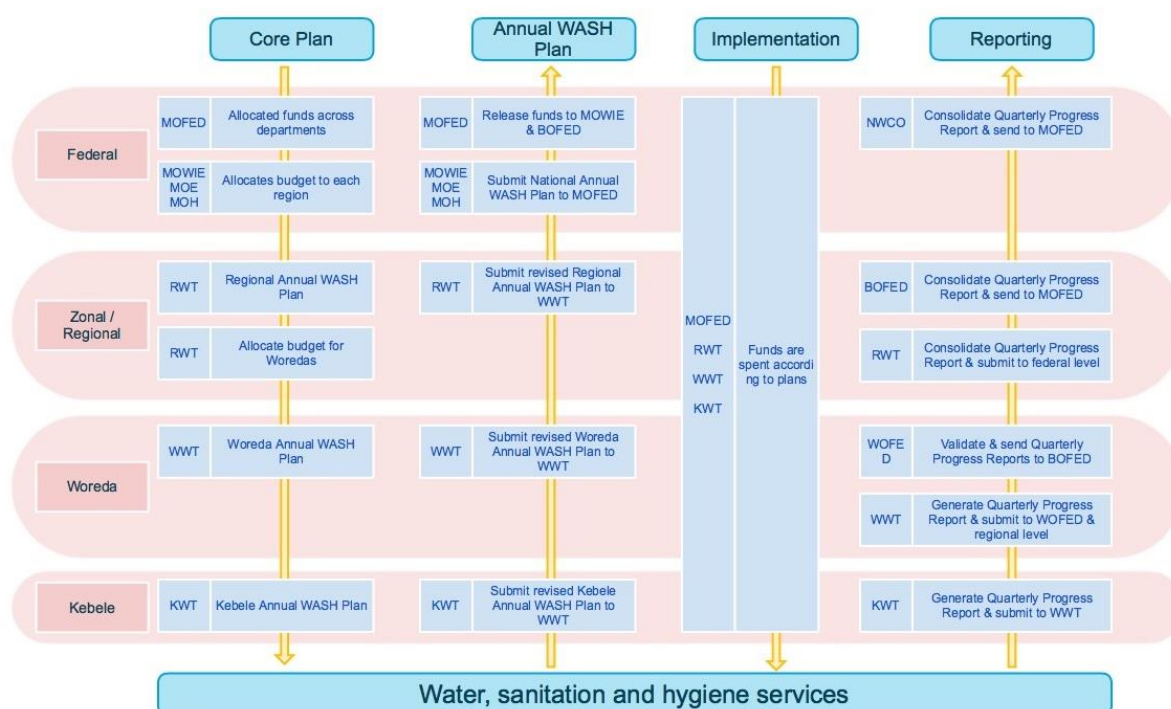
This report provides an analysis of the current status of OWNP identifying the gaps which will be used as the basis for developing the enhanced M&E framework (discussed in Section 5).

5 Task 1: Strengthening the WaSH M&E System

5.1 Review of Existing WaSH M&E Governance

The OWINP is broad and brings together a wide range of public and private stakeholders, NGOs, and development partners. The most important institutions for M&E to improve WaSH services are the institutions of the Government of Ethiopia operating at the different levels: communities, *kebeles*, *woredas*, towns, regions and ministries at the federal level. These government agencies collect, compile and report data for various reporting and planning objectives throughout the year (refer to Figure 1 below). The different government institutions perform M&E roles to different modalities of WaSH project implementation. A critical M&E feature of the OWINP is the intended integration at the various levels between data from various sources into one WaSH report and for that purpose dedicated offices, teams and committees have been created at all levels to coordinate, manage and govern the OWINP.

Figure 1: WaSH Sector governance, planning and reporting



Source: IRC (developed using information obtained from various sources including NWCO)

5.1.1 Kebele level

Most important for rural WaSH project implementation are the WaSH Committees (community level) (WaSHCOs). These operate at the community level and their role varies. Under the Community Managed Project (CMP) implementation modality, they are directly responsible for contracting, procurement, quality control and financial accountability to the community, the *kebele* and the *woreda* Administration. M&E under the CMP has been aligned to the NWI indicators and is carried out with support of the Community Led Accelerated Water, Sanitation and Hygiene Project (COWaSH). Under the woreda managed project modality, WaSHCOs do not have such an active role in scheme development but constructed schemes are handed over to the community to operate and manage.

In the OOWNP, WaSHCOs are expected to provide inputs in the annual Kebele WaSH plan and report to the *kebele* WaSH Teams (KWTs) where these are established (e.g. CWA programme *woredas*). WaSHCOs and *Kebeles* (except in Tigray where there are Kebele level staff) do not yet have a formal role in data collection and do not widely use data that are available. Most of the planning and reporting is led and coordinated by the *woredas*.

At the community level Health Extension Workers (HEWs) and the Health Development Army (HDA) also perform key roles in implementing the policies and plans of the Ministry of Health (MoH). HEWs provide regular and extensive household level data for the Health Management Information System (MoH) and the Hygiene and Environmental Sanitation Programme monitoring (see box 3 in annex 4 for more discussion). These data also now feed into *woreda* health offices, regional bureaus and the federal health M&E. Under the CWA the expectation is that data will be integrated in the *woreda* WaSH Team (WWT) reports and subsequently the reports of the regional and national WaSH coordination offices (RWCO and NWCO).

For WaSH interventions and M&E in schools, the Ministry of Education (MoE), through its Regional and City Bureaus, *woreda* and Town Education Offices, will be responsible for implementing the OOWNP hardware and software activities in schools. Data on WaSH facilities in schools will feed into the Education Management Information System (EMIS) of the MoE. It is planned to be used and consolidated by the OOWNP coordination offices at the various levels.

5.1.2 *woreda* level

The *woreda* level is the nodal point for planning and M&E. At this level data are collected, received from lower levels (community and *kebele*), and used for operations and planning. Consolidated data reports (for the whole *woreda*, not yet across sectors) are also sent to Regional and Federal levels. At the *woreda* level the line ministries involved in the OOWNP have their own M&E and MIS systems feeding data into Regional Bureaus and Federal Ministries. Besides their roles in planning and reporting, the *woredas* are the most important level to respond to immediate operational challenges in WaSH, for example breakdowns, malfunctioning WaSHCOs etc. They therefore have a key role to play in collecting data and keeping data updated. They have greater incentives for data collection if the data is immediately available for local use. However, crucial for the OOWNP is the integration of data. Some of the important functions of the *woreda* in WaSH M&E are:

- Under the *woreda* Managed Project (WMP) modality, the WWT is the project manager and is responsible for contracting, procurement, inspection, quality control and handover to the community. Construction is supervised by *woreda* staff. Data on progress and results is planned to feed into the *woreda* consolidated Annual WaSH plans.
- NGO-supported projects will feed information into *woreda* consolidated Annual WaSH plans.
- WWTs consolidate annual WaSH plans and data of the WaSHCOs and the KWTs will feed into *woreda* consolidated WaSH plans. There is a question of leadership for integrated reporting and planning across these institutions and responsibilities may not be clear. These issues will be assessed further during the regional visits.
- The WWT will submit monthly, quarterly, and annual WaSH progress reports to the Zone and Region.
- The *woreda* is the first level where integration of data into one WaSH plan will take place. For this it will be important to have access to the MIS data of the different ministries.
- *woredas* have a role in water quality testing². New schemes require a water quality test and certification on completion and the health sector is responsible for periodic monitoring of water quality after commissioning of schemes although this is not always achieved. The Ministry of Water Irrigation & Energy (MoWIE) is responsible for monitoring water quality of ground water and surface water before construction. *woreda* Health and Water Offices and /or Regional Bureaus are to perform these tasks.

Different *woredas* implement different projects from different funding channels. They also need to monitor the outcomes and impact of the different funding channels and often these use different monitoring systems. Often the *woreda* has to report different indicators and use different reporting formats, which could make monitoring cumbersome.

² See Annex 4 for further information

In Table 3 an example is used to illustrate how different *woredas* can have different sources of funds flowing through their budgets. All *woredas* receive a block grant based on a budget allocation formula. The block grant is transferred from region (BOFED) to *woredas* as a block both for capital and recurrent expenditure. The *woreda* decides the allocation of budget to each sector at *woreda* level from its total available financial resource (block grant plus own revenues). *Woredas* also receive funding from a range of other channels. For example *woreda A* receives the regular block grant, funding from the CWA, a bilateral donor, NGOs and emergency WaSH organisations. *Woreda C* however only receives the block grant, which is often just enough to pay for salaries and maintain buildings. OWNPN M&E needs to capture efforts associated with all these funding channels.

Table 3: Multiple funding flows at *woreda* level

Different Sources of Funds at <i>woreda</i> level					
CHANNEL	1a	1b	2	3	Other
<i>Woreda A</i>	Block grant	CWA	Bilaterals	NGOs	Emergency WaSH
<i>Woreda B</i>	Block grant		Bilaterals		Emergency WaSH
<i>Woreda C</i>	Block grant				

Source: IRC (compiled using the information gathered)

Actual capacities at the *woreda* level will be critical. These issues will be further assessed through a capacity assessment that is specifically focused on capacities for M&E at *woreda* and other levels. It will assess current staffing and roles in WaSH related M&E, skills, training issues and existing capacity building initiatives.

5.1.3 Town level

In towns, just like in *woredas*, planning and implementation of the CWA will be coordinated by a WaSH Team consisting of members from the Water, Health, Education and Finance Offices. The Town WaSH Technical Teams (TWTTs) will also be responsible for collecting data in their towns. TWTTs, Town Water Boards (TWBs) and town utilities are responsible for completing annual reports and forwarding data to zonal and regional WaSH coordination offices.

Town level reporting is more complicated because of two ways of financing: on-lending and Grant. For the on-lending financing is arranged with the Water Resources Development Fund. The link between WRDF and RWCO is weak and needs to be strengthened. There is a question of leadership for integrated reporting and planning across these institutions and responsibilities may not be clear.

5.1.4 Zonal level

Zone sector offices provide coordination, support, and a monitoring role within their jurisdiction. Zones are not fully autonomous like *woredas* and towns. The Zonal *WaSH* coordination offices (ZWCOs), where and when established, are expected to support towns and *woredas* in technical matters and monitoring. In relation to WaSH M&E, the role of zones will be to support *woredas* and towns to manage their data collection, ensuring quality of data, and to facilitate between region and *woreda*.

5.1.5 Regional level

The region has a critical role to play in using data for prioritising and phasing interventions in the most needed *woredas*. The RWCO and its implementing ministries are designed to play a vital role being accountable to the regional state council and partner agencies for the achievement of expected WaSH results. The RWCO is expected to oversee the proper functioning of the M&E of the OWNPN at regional level. Regional bureaus will also feed the line ministries with data. The regions do not collect data but are expected to consolidate data from *woredas*, towns and zones into one regional WaSH report. The RWCO is envisaged to submit monthly, quarterly, and annual WaSH progress reports to NWCO.

Regional Coordination Offices (RWCO) appear not to have been organized in all regions and this will be assessed further through regional visits. While some regions have tried to establish as intended RWCO with representation from the regional sector offices, none of the regions have yet established RWCO and four sector PMUs in line with

the framework of the WIF and OWP document. In most regions the RWCO is located in the regional water bureau with some program support staff and a regional coordinator assigned. The other regional sector offices have assigned WaSH focal person working from the sector bureau. The RWCOs are not well organized (lacking guidelines etc), and are not yet adequately staffed. Since the RWCOs are not yet fully functioning, the role is being partly filled by Regional Project Management Units. A concern here is that the PMU is water focused so does not cover all sectors.

5.1.6 Federal level

M&E of the OWP is critical for the WaSH MoU signatories (MoWIE, MoH, MoE and MoFED) and requires a system to demonstrate progress utilising expenditure from government and development partners.

The most crucial role in the OWP for M&E is for the NWCO. NWCO consolidates data from the regions into one national WaSH report which it submits monthly, quarterly and annually to the NWTT and through it to National Wash Steering Committee (NWSC).

The NWCO will make reports accessible for different constituencies such as the Water Sector Working Group, development partner representatives, Ministers and National Parliament. They also have a role to play in generating reflection on M&E results, for example through the Joint Technical Review (JTR) and the annual Multi-Stakeholder Forums (MSF) and for facilitating experience sharing within and outside Ethiopia.

At the Federal level the following coordination platforms have been established:

- The National WaSH steering committee (NWSC) involving the four state ministers
- The National WaSH technical team (NWTT)
- The Water Sector Working Group (WSWG)
- Joint technical reviews (twice annually)
- Multi-stakeholder forum (annually)

There are a number of challenges to be addressed however:

- Not all of these structures are functioning optimally – including the critical NWSC and the NWTT – which will hamper coordination of WaSH M&E.
- The lead organization in the MoWIE for M&E is the Planning Directorate, according to the organizational set up. It is responsible for consolidating and producing the annual plan of the Ministry and reporting the progress of the implementation of the annual plan. It requests directorates quarterly to report on progress. This reporting mechanism does not address the WaSH program adequately however.
- When it comes to WaSH planning and reporting, the Water Supply and Sanitation Directorate is leading the process through the PMU. One gap is that all donor supported WaSH programs actual reporting and monitoring has been coordinated by the PMU, with the planning directorate only consolidating for reporting to MoFED and other organs. Further even in the PMU the reporting is based mainly on consolidating from regional reports without any standard framework for WaSH reporting.
- The integration of hygiene and sanitation does not exist at all because the education and health sector has been reporting to their respective higher level offices based on their sector requirements.
- The vertical planning and reporting of WaSH has been entirely based on donor/financing based requirements. The reporting is primarily designed to satisfy “Fund Replenishment Requirements.” Reporting from woreda to region was also following a similar pattern, with weak capacity making the reporting inadequate.

5.1.7 Development Partners

For the Development Partners (DPs) participating in the OWP, in particular those participating in the CWA (currently DFID, World Bank, AfDB and UNICEF), a reliable M&E system is crucial for reporting progress on impact and value for money as defined in their national programme strategies. This accounts for the DPs participating in the CWA, bilateral DPs participating in channel 2 funding and NGOs in Channel 3 funding. Improved M&E across required indicators is aimed at avoiding duplication and creating synergy. NGOs are required to report within the

OWNP framework and there are large volumes of NGO collected data that potentially can be utilised. The OWP M&E system should facilitate NGO and project reporting to become part of the OWP.

5.1.8 Consolidated WaSH Account programme

The CWA programme is a core component of the OWP and brings together four critical funding partners (World Bank, AfDB, DFID and UNICEF) with others expected to join as the programme develops. Launched in 2014 the programme is guided by the Programme Operational Manual or POM.

5.1.9 Non-Government Organisations (NGOs)

There are many NGOs active in the WaSH sector. NGOs are required to report within the OWP framework and there are large volumes of NGO collected data that potentially can be utilised. NGOs also have reporting obligations and an interest to demonstrate their contribution to the OWP.

NGOs report against agreements with *woreda*, Regional (coordinated by Bureau of Finance and Economic Development (BoFED)) or Federal Government. Our understanding is that these agreements do not explicitly align with other reporting processes and that reporting is variable focused on outputs and expenditure.

The umbrella organisation, Christian Relief and Development Association (CCRDA), Water and Sanitation Forum (WSF) takes the initiative at federal level to produce a consolidated NGO report and has recently drafted its fifth report.

5.1.10 Central Statistical Agency (CSA)

The CSA undertakes nationally representative household surveys (such as DHS) which has a particularly important role in impact evaluation. The CSA are only the custodians of the National Statistical System and in that role are able to support wider sector monitoring processes.

5.2 Review of Existing WaSH M&E Information Systems

This section provides a review of the main information systems currently used to monitor Water, Sanitation and Hygiene. We compare the use and implementation of each system against its explicit goals, followed by a brief comparison against the overall OWP monitoring objectives.

The word monitoring is used here in an inclusive manner to mean tracking data on water and sanitation facilities and services, collecting data, managing data, and/or using that data for operations, planning, budgeting and assessing performance. In this sense, a wide variety of information technologies and systems will be reviewed, used by both Government and Non-Government actors. Discussion around each system includes a short description and a table on the system's technical, financial and operational parameters. For a description of the methodology used to review and compare these systems, refer to Section 3.

Box 1: Information and Communication Technology (ICT) Innovation in WaSH M&E

The World Bank ICT glossary defines ICT as consisting of the hardware, software, networks, and media for the collection, storage, processing, transmission and presentation of information (voice, data, text, images), as well as related services (World Bank, 2013). An ICT innovation is any innovation in technology at any scale, including ICT hardware, software, networks and services (Pearce, Welle, & Dickinson, 2013).

ICT innovations hold a great potential to improve collection and dissemination of data on water supply which can provide new opportunities for opening up monitoring practices and influencing policy processes. For instance, ICTs have the potential to improve service delivery of WaSH by reducing operational inefficiencies in government administration and by facilitating new communication channels between government and citizens (Dizidonu 2010, in: Pearce et al., 2013).

Software is continuously improving and becoming easier to use and more affordable, with increased availability of open-source software which enables anyone to use and distribute the software for any purpose. Therefore, problems related to affordability of software and insufficient local government capacity is likely to be reduced as software continues to evolve.

5.2.1 Government WaSH M&E Information Systems

In this section we have reviewed the following Government WaSH M&E Information Systems:

- The National WaSH Inventory (NWI) (2010/11)
- The National WaSH Inventory (NWI) in Somali region (2014) with mobile data collection
- The WaSH M&E MIS developed by consultants PUT
- Ministry of Health MIS
- Ministry of Education MIS

MoWIE has worked on a comprehensive inventory of WaSH infrastructure and some partially implemented WaSH management information systems. The information systems at MoWIE aim to play a central role in OWP and focus primarily on the urban and rural public water schemes but also increasingly include data on household sanitation and institutional WaSH, especially WaSH in schools and health care facilities.

The current systems that have been implemented at the Federal level include the WaSH MIS developed by PUT, the NWI data sets collected in 2010, entered in a MS Access Database and stored in spread sheets, and the Akvo FLOW instance used to store the NWI dataset from 2010 and the Somali region NWI inventory in 2014.

Currently the NWI data is the most comprehensive data set available at Federal level. In addition to this, there are various paper, spread sheet and presumably database-based administrative systems at Regional and *woreda* levels presented in this section. The Ministry of Finance's IBEX system is also briefly introduced.

5.2.2 National WaSH Inventory

The NWI made available for the first time a consistent set of data from (almost) the entire country. Prior to this date, national figures were compiled from regional inventories, reports and updates. In 2010/11, data collection was undertaken in all regions except Somali, and results were made available in 2013. The NWI covered over 92,000 rural water supply systems, over 1,600 small town systems and 50,000 schools and health institutions. Through a household census 12 million households were also interviewed about their water and sanitation facilities and hygiene practices.

Information: The NWI dataset has a well-defined and limited set of indicators and questions. These were defined prior to piloting in 2010 and subsequently refined (changes to these indicators maybe required to align with the GTP II in the coming months).

Government and many NGOs worked together to collect this data so there is broad ownership for the NWI surveys. Users appear to understand this dataset and there seems to be alignment with other sector data collection initiatives implemented by local government in partnership with development partners and NGOs. The MoWIE has also previously indicated that the NWI process developed a high level of informal knowledge at *woreda* level (Hailu, 2013). However there appears to be minimal alignment with national systems such as the Ministry of Education data on WaSH in Schools and the Ministry of Health data on health facilities. There is also lack of NWI input forms in the WaSH MIS developed by PUT. At the national level, the NWI dataset is considered as the primary dataset that should be updated, although other possibilities may also exist such as WaSHCO forms in the WaSH MIS.

The frequency of data collection is both ad-hoc and not as high quality as initially envisaged. Although there is now a strong drive by the sector to repeat the NWI once again for the entire country, there have been no updates since 2010/11. Access to the data is also not evident as it is stored in MS Excel sheets, the WaSH MIS and separate Access databases that were used for data entry. There is no web access to the data. There have been efforts to import this data into Akvo FLOW (further discussed below). We have not yet investigated the availability of NWI datasets at the *woreda* level and this will be assessed through a series of regional visits seeking to learn lessons from the first NWI to inform future repeat data collection.

The NWI data is comprehensive but there are concerns regarding the time length (two and half years) required for the data entry and analysis. There has not been any repeat data collection and it is anticipated that versioning of the information at non-aggregated levels will be very difficult outside of a database like the WaSH MIS because of a lack of consistent unique IDs.

Overall, data is considered to be consistent and the source legitimate, which is considered as a strength of the NWI. However, there are major concerns about the validity of some of the data due to data entry errors, GPS

formats and delays in data entry (especially for household data which is not expected to be replicated). Recent work by Akvo to map the NWI showed that there were still many GPS errors and it may be difficult to relocate facilities in the future. The lack of proper validation of data was an important gap. However despite the many gaps that may exist in the NWI data it is in some respects an example of a better data set and provides an important baseline. Further follow up is proposed to assess whether the quality of the mobile-collected Somali data was a significantly improvement.

Technology: As the NWI was a paper-driven data collection exercise and the tools for data entry were customised Access tools, there is strong configurability of the system. Hand-held GPS devices were used. However, interoperability in the future with other systems will be difficult and there is no online or mobile access to the data. In addition, the tools are not ensuring robust data or user security and these depend on the processes in place by government (or others) that handle the data.

Processes: The NWI was a very collaborative process involving significant support by UNICEF for the MoWIE leadership. NGOs were enrolled in the Regions and *woredas* where they work to collect the data and cover the significant logistical costs.

However, data management, analysis, and the generation of reports were very process heavy and required manual interventions. Dissemination occurred three years after the data collection. As such, the NWI was not an easy or light process and validation was challenging with CSA providing approval to official use of the household survey data (e.g. in JMP estimates) in 2015.

Objectives and values: The NWI built on the fact that GPS devices were in use in most *woredas* and were relatively easy to use in addition to paper surveys in both English and Amharic script. Overall, this ensured that the language/localisation, technologies and processes engaged did not vary significantly from past practices of less systematic data collection practices and were easily accepted.

However, after the collaborative and acceptable NWI data collection, analysis and sharing data has been more challenging. The results themselves were challenging as they showed lower than expected coverage. The MoWIE were however able to present and defend the results under parliamentary scrutiny. Recently the CSA approved use of the household data as official data. As such there have been some significant socio-political barriers to finalising the NWI and repeating data collection. There has also been weaker links with and engagement by CSA.

Staffing and skills: Staffing and skills are a critical issue. The exercise was led by government at national and regional levels and leadership was strong. UNICEF and an ODI fellow provided technical assistance for the NWI. Beyond data collection and overall facilitation, it was also necessary to outsource the development of software for data entry, quality control and quality assurance. A full database system has yet to be developed for the NWI although data has been imported into the WaSH MIS by PUT.

Management systems and structures: During NWI data collection and entry, there appeared to relatively well defined roles and responsibilities. The exercise was led by the MoWIE and widely supported by development partners and civil society.

There is interest from MoWIE leadership and donor partners to repeat the NWI so that realistic and timely data can be established periodically. Further information is being gathered regarding current plans for update of NWI. One concern would be that without clear data management, data collection, data cleaning and dissemination plans in place a repeat data collection exercise may also not lead to optimal use of the data collected.

Other resources: The cost of software development and installation, operations, training, technical support, field work and validation is significant and the sources of finance have been ad-hoc based on support from international development partners. There is no recurrent budget at MoWIE or at the various decentralised levels to carry out another inventory. It is difficult to obtain a cost estimate and this remains a source of concern.

UNICEF estimates the paper based data collection in 2010 to have costed ETB 181 million including the ETB 100 million by MoWIE and the costs for the printing and additional technical support and logistics from NGO contributions (Akvo, 2015).

5.2.3 NWI Somali region using mobile data collection

In 2014, MoWIE, supported by UNICEF, undertook the NWI in Somali region using Akvo FLOW as a mobile data collection tool. The surveys used were the same as those used during the original NWI, with the exception of two household surveys (Form 4: Household Hygiene and Sanitation, Form 5: Household Water Supply). The Akvo

FLOW platform combines a mobile app that uses Android for data collection with a web-based administrative dashboard where surveys can be created and assigned to phones and where data can be downloaded and edited to some extent.

Information: The question and answer forms used are identical to the paper forms used in NWI. However, according to the Akvo presentation in March 2015 only 10 KPIs were used out of the original 15 and the household surveys were not included. There is no significant deviation from sector norms and the information design-reality gap is very similar to the original paper based NWI. However there are some notable differences:

- There is access to data via a web interface for improved access. Access can be determined on a survey basis but not yet on a *woreda* basis.
- The data is believed to contain less data entry errors and better GPS coordinates (although some devices caused problems).
- It will be easier to version data in the future using GPS coordinates although it will still be a challenge.
- The FLOW dashboard is not the official MIS (WaSH MIS) and thus there may still be issues with duplicate data sets and authenticity of data.

The system does not yet offer any way to track data over time or to keep multiple versions of a record based on changes. This can be turned on by changing the surveys into “monitoring-enabled” surveys. However, duplicate records cannot be easily combined and there are some minor issues with data management that may require Akvo intervention.

Technology: Akvo FLOW offers a significantly different technology option in terms of data collection hardware and software and web-based data management with rudimentary access control. In addition, the platform now offers some possibilities to enable monitoring (repeat data collection) in the future with field-level maps on Android phones.

The FLOW technology enhances quick interoperability of the system with less manual steps. It offers a way to download the responses with custom column names for each question as an Excel file or using the Application Programming Interface (API). However, it is not yet possible to give custom codes to the responses as is standard in HTML forms and which facilitates interoperability. To some extent, answers to questions can be constrained and the questions themselves can be dependent on previous answers. Due to digital interface, double data entry is not required (which is supported) and transcription errors should be reduced significantly. This standardisation also makes data cleaning and analysis much easier than the paper and Access database combination used in the 2010 NWI.

While FLOW monitoring-enabled surveys allow offline access to data on maps downloaded via the smartphone, these offline features have yet to be used. The Somali Region NWI did not make use of this offline access. These features and the submission of surveys work better with intermittent internet access, for example at a head office. Thus, in this case, the data collection took place offline and the provision of information was one-way from field to the Ministry at the national level. Sending data back to *woredas* and regions is a manual task. There has not been any integration with the WaSH MIS.

User security features allow administrators to provide users specific rights to the web-based dashboard on a survey or survey group level. There is no in-built system for limiting access based on geography (e.g. GPS points or Unique Identifier for Administrative Regions (ADMINORGID)). Data security is built into the cloud-based platform but does not offer user-access to versioning of data and special requests to Akvo have to be made by users if the data is corrupted to restore the old data. There is currently no system to back-up the data offline, which differs from NWI 2010 excel sheets.

It is worth noting that the use of Akvo FLOW requires some access to power/electricity to charge the phones regularly and for internet access when uploading data or downloading surveys. In Somali Region car-battery chargers were used in remote areas to charge the phones on a regular basis. The operation costs and installation costs need to be taken into account since power and connectivity are sparse. The platform space and maintenance requirements are relatively limited for the cloud-based aspect of the system (no servers required) but the phones require basic technical support and asset management, including periodic software updates.

Processes: Overall, ease of use of the system is strong and users have been able to do data entry and data cleaning after receiving training, supported by Akvo and UNICEF. The processes have been accelerated by the

system but most cleaning and analysis must be done in downloaded Excel sheets. Currently, user management of the web-based platform is simple to learn, but it is not clear what the user management processes are in place for post-Somali NWI and ad-hoc requests must be made for access. It is not clear if the MoWIE staff are managing this or requesting Akvo to make changes.

Configurability is strong and the question forms (parameters) can easily be changed on the FLOW dashboard with an internet connection. It is important to set up access rights to restrict the ability of users to do this inadvertently. Currently there is no clear process in place for this and the capacity to develop surveys rested with IRC and Akvo at the early stages of the Somali region NWI.

There is no clear data management system in place as this has, until now, been implemented on a project basis. The system does not support more than rudimentary reporting and analysis processes. Dissemination processes all occurred outside of the platform and the public web-based map only shows data points with no information about the information collected.

Objectives and values: The paper-based surveys were not used and participants were required to learn to use Android phones with the Akvo FLOW app. However, many already had smart phones in Somali Region and ultimately the surveys were relatively easy to learn in a short workshop. Familiarity with the technology is high. However, it is clear that if more time is spent learning the technology, there should be enough time to practice in the field.

The online systems are harder to learn outside of the Ministry due to more limited internet access and this will be a barrier for decentralised data management. In addition, while it is clear that the data is owned by the Government, there is some ambiguity as to the ownership of the platform as UNICEF has been sponsoring the use of Akvo FLOW and it has not been re-tendered as is the case with the WaSH MIS.

The ability to share recently collected raw data is greatly enhanced by Akvo FLOW but these features are not currently used and this aspect of the tool is perhaps under appreciated. There is also the possibility to link to the WaSH MIS through the API but there has been no discussion with PUT and Akvo as stipulated in the original contract. This may be due to the differences in the objectives of the three parties and that the contract is only with Akvo.

The system is highly configurable and it should be possible to restrict access per region to datasets but currently the administration of users is not quite as suited to the Ethiopian context as the WaSH MIS (*woreda*-level restrictions). On the other hand, the FLOW system is much easier to configure overall. FLOW enables translation but there is currently no support for Amharic and this is similar to the WaSH MIS. As a result, the localisation is poorer than the paper-based data collection tools.

Staffing and skills: Currently, due to the sponsorship and support by UNICEF and the technical leadership by Akvo during the Somali region exercise, it is not clear what level of competencies with the web-based interface exist in MoWIE. There is an English manual online but no Ethiopian specific manual that we are aware of. While Akvo FLOW is used, there is a basic level of online support available and with the support of UNICEF the system is much more actively supported than the WaSH MIS.

Management systems and structures: Due to the support of UNICEF and Akvo, the active management of the system is delegated by MoWIE to Akvo. This leads to some ambiguities in terms of roles and responsibilities and some issues regarding who should have access to the system that can be resolved on a case-by-case basis. Currently the development of plans for MIS management and budgeting is in flux due to having the WaSH MIS and Akvo FLOW unsynchronised and seemingly in competition even though they have fundamentally different feature sets. It would be worthwhile to work together with MoWIE and OWNPN stakeholders to review these feature sets and associated capital and O&M costs.

Other resources: Currently costs are covered by UNICEF and the Akvo FLOW instance prices have recently (April 2015) been updated and posted online (<http://akvo.org/products/pricing/>). Akvo have provided an estimate to extend the data collection to the other eight regions, however, there is not yet a cost estimate for the yearly O&M of the platform and of the custom built analytical platform they are offering to display KPIs dynamically. As is the case with the paper-based NWI, these costs are financed and budgeted on an ad-hoc basis.

A comparison of estimated mobile and paper based data collection costs by IRC (Dickinson, 2013) for the Somali Region NWI suggested they might cost approximately the same although actual costs depend on the number of phones purchased and phasing of the data collection amongst other factors. Akvo confirmed that actual costs were

similar between 0.14 – 0.15 USD per person during their exercise in Somali Region. However, it should be noted that the 2 household surveys were dropped in Somali region and as a result, a lower cost might have been expected.

Another analysis by Akvo shows that repeating data collection in the 8 original regions should be less expensive (nearly 50% less) using mobile data collection and presumably reusing phones across region, thus reducing a major cost centre. This estimate also included some software costs. However, the logistics of this arrangement would need to be validated and may prevent establishing regular reporting mechanisms reusing the same phones.

Key findings of the Somali data collection were that data could be collected much faster and more reliably than using paper based systems (with GPS data entry). These are the major advantages rather than cost savings. Costs will strongly depend on whether data collection is intended to be part of a monitoring system (with on-going use of phones) rather than as a one-off exercise.

5.2.4 WaSH M&E MIS by PUT

The WaSH M&E MIS is available to woredas online at www.ethiowashmis.gov.et and has an administrator manual and a user manual. It was developed by consultants PUT. This analysis is based on a combination of interviews, the manuals, and a brief review of the basic user access online. The team, to date, has had limited access to the data.

Information: The WaSH M&E MIS is based on various levels of user access to data and controlling data flows with verification and approval of data entry by administrators along the user hierarchy. As such, *woredas* can submit data and a region or ministerial user could approve this information. The WaSH M&E MIS is a relational database management system (RDBMS) and data management and data input requires several steps by different users;

- Setup of water scheme,
- Approval of water scheme,
- Reporting technical details of water scheme,
- Approval of technical details etc.

The data structure is well defined and there are clear data entry forms and manuals. At a high level, the MIS is split up into rural water supply, urban water supply and sanitation and hygiene in terms of monitoring data. Under rural water supply, the high level data objects include the WaSHCo Tool and the Technical Instrument for rural water supply. The actual entry forms (and required fields) differ from the NWI data collected but presumably by combining NWI data manually with data stored in *woredas* and in other offices (e.g. scheme design volume in m³/day), the full forms can be filled. Due to the complexity of the system and its limited (if any) use thus far, it cannot be said that the data forms are well understood outside of MoWIE unlike the NWI. Thus alignment with other sources of information is only moderate.

Box 2: WaSH MIS Developed by PUT

In 2010, PUT took responsibility for designing, planning, developing, testing, training, piloting and roll-out of a server-based Management Information System to replace the Microsoft Access database. This was done in participation with Addis Ababa University. At the time of the National WaSH Inventory in 2011/2012 the software was still in the test phase and in 2012/2013 the first reports were generated.

The system addresses rural, urban, education, households and health centres and captures administrative data. The servers for both data and application are in the National Data Centre and the system can be accessed through internet. High capacity is required to manage the tool and use the system. The tool is designed to have good security and administrators can provide different access levels for different users. The scope of the tool is limited and there is no function to query data. PUT is not a fully GIS based system although geographic coordinates can be stored (without guidance given on coordinate systems and we also understand existing data mixes reference systems).

As the required fields for input are different the WaSH MIS cannot be used for NWI data entry as such and importing data requires manual intervention. The geographical coordinates are only partially supported in WaSH MIS with no mapping possibilities in the system itself and based on the poor quality of coordinates collected during the 2010 NWI, it is likely that there are issues with data quality and perhaps with the coordinate systems used. It is

unclear whether the WaSH MIS forms fit exactly the paper files commonly found at *woreda* level and this warrants further investigation as the system has not yet been used substantially by *woredas*.

The system only holds NWI data (imported in 2012), and the frequency of data updates is not as regular and as systematic as would be expected for an RDBMS with the purpose of monitoring and reporting in a decentralised manner. We are not aware of any significant use of the system to store new data, although this will be further investigated in the regions. While it appears that data should be stored on an annual or reporting period basis there may be no fine versioning on an edit-by-edit level, although every edit does require an approval step. There does not seem to be a method for combining records or resolving conflicting records except by manual intervention.

According to PUT, the system is hosted in the National Server Centre and the coding of the ADMINORGID is automatically updated/linked to the CSA coding. However, as the CSA codes are changing constantly, it is not clear as to the extent to which this has been accomplished in practice. Overall, the RDBMS provides a structured approach to data entry and approval but it has limited configurability and use of the data.

Technology: The WaSH MIS runs on a Microsoft SQL backend (Microsoft Visual Studio .NET 2008 and Microsoft SQL Server 2005 Express) and on a simple Windows server (see administrative manual for requirements). It is currently maintained in the National Server Centre and accessible via the web. As an RDBMS using well defined data sets and built on standard technology, it is possible to modify the system for interoperability with third party systems such as systems for health or education or even a 3rd party mobile data collection tool (refer to Annex 4). However, as it is not open source and has no published API, it is not clear what it would cost to have another 3rd party undertake this and whether they would have access to the source. This depends on who owns the source code. This means there is only a moderate level of interoperability possible and that in the immediate to short term, it may not be likely without PUT involvement.

The WaSH MIS is highly configurable as described in the administrative manual. Indicators can be defined as well as their geographical scale of calculation, category, targets and formula. Fiscal years can be setup with custom date ranges (non-Ethiopian dates used) and can be defined as current and/or opened. The same can be done with reporting periods in a fiscal year. There is also manual configuration of the administrative organ IDs but it is unclear how or if this works with the automatic connection to CSA. There are other project, budgeting and planning configurations as well. The WaSH MIS could be very powerful and dynamic if it was to be used. As can be expected from a traditional RDBMS, it is not simple to change the input forms and data structures and this limitation could be an issue as changes are required over time. There is no offline access or use of the system and no mobile based website. It is also unclear if there are compatible paper templates for the data used at *woreda* level. This is very limiting considering the reality of power and connectivity at decentralised levels in Ethiopia. This could be one of the main barriers preventing its use. The online interface was working at the time information was being collected for this report, but at a different URL than in the manual, which could be a barrier to access. Overall, the feature rich interface is poor for the majority of users (especially the data entry 'clerks') and the system could benefit from a mobile offline interface. It appears that the system would incur additional costs and would be limited in functionality and configurability compared to the low cost alternatives now readily available through app stores and open source projects.

Data security is managed by the Ethiopia central server but is not clear what procedures are executed on a regular basis and what the maintenance agreements are with MoWIE to ensure continuous access to data.

Based on the manual description, user security is very strong with geographically based users and the ability to create custom access levels by the administrator. A request has been made via NWCO for further information and possible access to datasets.

Processes: Currently access to the system by users is a problem and there does not seem to be a clear process or support structure in place to ensure that this can happen. User administration, data collection, data management, analysis, and report generation are all technically possible, but the competencies, the support, and processes required to enable this, are yet to be established. There is also no clear dissemination plan and although it is easy to generate reports after significant configuration and knowledge of the system, the web interface makes it difficult to navigate the data the available data. Simplification of user experience would benefit users that would be using the data on a day-to-day basis. The system also suffers from a lack of offline and mobile access. Finally, because no data is coming in, there is also no validation taking place.

Objectives and values: While, the RDBMS offers good features and possible alignment with the hierarchical structures in place as well as a way to configure the indicators, targets, reporting periods, the WaSH MIS faces problems to meet the objectives and values of the users.

There are many unknowns due to the lack of use of the system. However, as the majority of users would be at a decentralised level, there is most likely to be a need to re-examine how the system could encourage and facilitate use at this level. It does not seem easy to access data at the *woreda* level for example and there is no Amharic interface. While technically the database could also be used purely at Regional and National level with data entry at Regional level or by importing from another system, this would be a departure from the original design and will require changes. It still remains to be seen what reasons the *woredas* would have to actually submit the data on a regular basis and ensure that the data remains relevant.

Staffing and skills: Currently, most of the technical management and support seems to reside with PUT and possibly the National Data Centre. There is no clear regular contract for maintenance and support of the system users. At the same time, it seems clear that there has been little or no use at national or *woreda* level since 2013. As a result, the staffing and skills for operating the WaSH MIS is seriously lacking, especially considering the high level of activity required to configure, setup data structure (schemes, sources), and follow up on reporting.

Capacity assessment will be undertaken to help better understand the capacity that exists in the sector with respect to full operationalization of the system.

Management systems and structures and other resources: The ultimate owner of the system is MoWIE and holds the decision making power, however, as PUT developed the system under traditional contract, it is not certain if the source is owned by MoWIE and this could be contentious if a third party is contracted. The types of system users are defined and their technical system roles but it is not clear if this matches how people would ideally like to use the system (for example only for queries or for reporting or for administration) and whether they have the right access rights. We will obtain further information related to list of users and their access rights.

While management appreciation and ownership of the MIS is strong, there do not appear to be any data collection or data management plans targeted directly to the WaSH MIS since its development. Dissemination of data and system costs also seems to be covered on an ad-hoc basis. There is good appreciation by the management of the technical requirements to operate the system and its capabilities but it is unclear if there is much hands on experience.

5.2.5 Health Management Information System

The Health Management Information System falls under the MoH and the system is actively used. It should be made clear that this information system is not fully digitised and does contain significant paper trails as reports are sent from one level to the next. Due to the limited access to the system this analysis is based on literature review and interviews with MoH.

Information: Since July 2014, there are three WaSH indicators. Previously, the indicators consisted of latrine access and safe water and these have now been replaced with:

1. Proportion of households (HHs) with access to latrine facilities³.
2. Proportion of households that use a latrine properly
3. Proportion of *kebeles* declared open defecation free

These are calculated from five reported figures from health facilities on a quarterly basis:

1. Number of HHs with improved latrine (Hand washing facility + Slab + ventilation pipe) during the quarter
2. Number of HHs with unimproved latrine during the quarter
3. Number of households with any type of latrine facilities (both unimproved and improved)
4. Number of HHs utilising latrine
5. Number of *kebeles* that have been declared open defecation free

³ The new indicator requires latrines to be disaggregated by "improved" and "unimproved" latrines

The indicators undergo revision on a regular basis but do not currently include the household management of liquid or solid waste or health facility and school WaSH indicators. Additional WaSH indicators are under discussion and may be included as part of the development of the Health Sector Development Plan (HSDP) V.

It is worth noting that Regional Health Bureaus play an important role in the HMIS and in WaSH monitoring in general. They have both HMIS and programme monitoring requirements that work in parallel although this is not encouraged. The reporting from zonal and facility level differs per region and each region has the flexibility to choose its own set of indicators and parameters, which leads to some differences nationwide beyond the five parameters mentioned above. For example, the National Protocol for Hygiene and On-Site Sanitation sets out 18 indicators from which RHBs can adapt their system. WSP recently conducted a study on the HMIS and the sanitation indicators. There is still a problem of several sector documents providing different instructions on how to collect and measure sanitation monitoring data without referencing one another.

The three main indicators of the HMIS are meant to be reported at a high frequency on a quarterly basis. In principle the scale is excellent and if household sanitation indicators are reported and aggregated, then this data should be available at all levels. However, the recently conducted Oxford Policy Management Value for Money study could not find aggregated sanitation figures at regional level suggesting that sanitation indicators are perhaps not yet considered a priority at regional level. Sanitation reporting is a major area for improvement and is receiving more attention (e.g. recent WSP study).

The data is stored separately for each reporting period and thus there is no need to add version control or conflict resolution. Reporting lines are clear and the data is thus considered authoritative/authentic although there is possibly some over reporting and estimation at facility level and there may be omissions in aggregated data.

The last Annual Performance Report (2006) on the website used the old indicators and only reported latrine access.

It is worth noting that the Southern Nations, Nationalities, and Peoples' Region (SNNPR) eHMIS has a facility for defining administrative organs (regions, *woredas*, *kebeles*) and giving their population as well as geographical shape files. This system is perhaps unique in this respect among the systems reviewed in this report and there is potential for lesson learning from this. In addition, the system design has ensured unique identifiers for all elements stored in the regional database. According to interviews at the Federal MoH, the names of administrative organs, rather than the unique IDs, are still in use.

Technology: The HMIS is a combination of paper-based reporting and digital tools, and although fully implemented, it is also constantly under development. In the last five years, there have been significant changes. In 2008, the HMIS reform team (MoH, 2008) wrote that ICT tools would be beneficial but “given the current fragility of infrastructure and ICT support in peripheral areas, the HMIS/M&E system will first prove itself as a clean and reliable manual system that can be used as a fall back in case of ICT failures.” By 2012, an eHMIS was trialled in SNNPR supported by the United States Agency for International Development (USAID). Digital reporting is used where possible and it has been found to accelerate the reporting frequency.

The electronic HMIS is an advanced suite of desktop applications which include intelligent optical character recognition (IOCR) that is meant to recognise and read handwritten scanned reports. The main applications are the Health System Reference Database, which provides population denominators, health facility information, and human resource information, the Data Entry Module with IOCR to reduce clerical tasks, an Aggregation Module to dynamically aggregate data, and finally a Decision Support System. It is not clear whether there is a server-based database in the backend or if the applications are fully decentralised. One brochure from the eHMIS project also mentioned that there would be a Mobile Executive Decision Support System installed on Android devices but it is unclear how this would be implemented. Interviews with MoH suggested that another mobile system, by HEX Mobile in Kenya, is now being trialled.

While the paper based tools are highly configurable, it is not clear how the digital tools are configured and how changes in paper based tools would affect data entry. According to interviews, health facilities which have electricity can report directly to the HMIS but it is unclear if they are using the same Data Entry Module trialled in 2012 by USAID in SNNPR. Digital data is submitted by email or CD depending on internet access. Interestingly, the eHMIS DSS includes an indicator definition tool where users can learn how the indicators are calculated and with sufficient privileges, the user can define new indicators. At this point, it is also not clear if the WaSH indicators are included in the desktop applications, and which ones, or if they are reported separately.

There is currently no web-based interface although a server is reported to be hosted in the Ministry of Health. Data security is organised separately at each level but it is unclear how user administration takes place. According to screenshots the desktop applications, trialled in SNNPR, do require a login and allow user administration for data entry in a decentralised manner.

As each administrative unit reports in its own manner, based on the availability of electricity, technical capacity and hardware/software, and as it is linked to regular reporting, it can be said that the HMIS is adaptable to the various power, space and maintenance constraints at each level. However, it is not clear if the same ICT tools are in use across the country or if the eHMIS is currently only used in SNNPR.

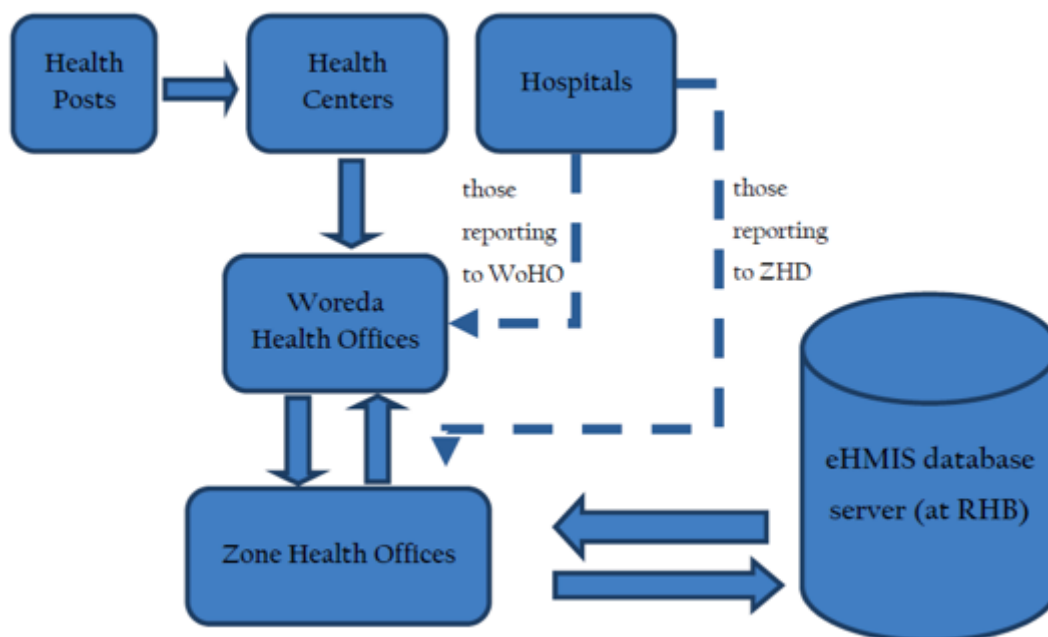
Processes: A key element of the HMIS is that it is an integrated performance management system with performance assurance and improvement. Reporting against performance indicators is a requirement and provides an incentive for the quarterly submission of data. The system ensures that there is access to the data at each level by management and by those being evaluated. There is no public access to the system.

The local management is responsible for local data collection and/or aggregation as well as timely submission of a complete report. Reports must be 85% complete otherwise they will not be submitted. However, this does not ensure that the sanitation and hygiene indicators are included or that reports are timely. Local management is responsible for defining the technological solutions for reporting data to higher levels so the system is fully decentralised. For example, in some cases, local staff may use hotels for electricity and they are charged a fee for access. Data is also stored and managed locally at each level so practices could differ greatly across the country.

Each report is reviewed and quality controlled. It is passed through the following people/units who aggregate the data for their next administrative tier:

1. Health extension worker
2. Health centres / Primary Health Care Units
3. *woreda* Health M&E/HMIS (Officer)
4. Zonal Health M&E/HMIS (Officer)
5. Regional Health Bureau Planning, Monitoring and Evaluation Unit
6. Federal Planning, Monitoring and Evaluation Unit of the MoH

Figure 2: eHMIS Data flows



Source: Wannaw and Azim (2013)

Tying data aggregation to quarterly reporting instead of ad-hoc data collection or annual reporting is in contrast to exercises such as the NWI. However, the data collected and aggregated can differ per region and this could cause

issues with data analysis and dissemination in annual reports at the national level. The HMIS follows four principles to overcome this:

1. Standardisation
2. Integration (all reports through the HMIS)
3. Simplification
4. Institutionalisation for the purpose of service improvement

Verification of data includes identifying trends over time for logical increments. If something is unexpected then the next level will investigate it. The performance monitoring teams operate at facility, *woreda*, and regional levels. The strongest verification is at facility level and directed by the head of the facility. At *woreda* level, action can be taken immediately if a direct response is required but the sanitation and hygiene indicators are primarily used to inform *woreda* plans. Regional staff provide support to create the plans for the *woredas*. Pre-developed plans are provided to the *woredas* and then the local plans are submitted. Final national targets are based upon the *woreda* targets. Data is also aggregated and disseminated in the national reports.

According to some technical reports there are still some issues with data verification. Data verification occurs to some extent through instruments like the Data Quality Survey and resubmissions are requested if problems are identified. Based on the experience of the SNNPR eHMIS, there are still disparities between the paper-based records and the electronic records and data verification processes could still be improved. Finally, the differences in priorities, between Regions and *woredas*, may lead to gaps in data as it is aggregated at higher levels.

Objectives and values: The HMIS benefits greatly from local ownership of the system and the choice of technology is mediated by local management. As such the data is owned by local stakeholders and there is vertical reporting. There are a number of technologies in use, ranging from paper to electronic systems, and this allows people to use the systems they are familiar with. The system is designed to be used for performance reviews therefore it is focused on reporting process and not on dissemination. This is in keeping with the current management culture. Most plans and reporting systems, related to sanitation information, are in English at *woreda* levels and above including the eHMIS in SNNPR. It is unclear what data collection tools are used by extension workers and health facilities. At the moment, the sanitation information is mostly used for *woreda* plans so it is not necessarily closely integrated with the work or performance reviews of health facilities.

Staffing and skills: There are regular trainings provided and each level is responsible to ensure that there are sufficient competencies to manage the data and meet reporting responsibilities. There appear to be good reporting capacity but the use of computers for reporting at all levels may still be a challenge. Some sector documentation suggests that there should be more supportive supervision and follow up. For example, Belay et al. (2013) reported that the participants expected more training to cascade down to facility level and that HMIS skills were still weak.

Management systems and structures: The HMIS ownership is shared between the MoH and the Regional Bureaus due to the strong decentralisation and diversification of the system across the country. Project and programme requirements mean that there are also some parallel reporting systems in place and this is exacerbated by the number of different instruments defining sanitation and hygiene indicators and monitoring requirements without reference to one another. Thus, while the performance based monitoring, provided by the HMIS and performance review teams, provides a strong foundation for the system, there might be a need to standardise and integrate more of the sanitation and hygiene reporting if the data is to be interoperable with the OWNPN M&E.

While there is an MIS plan and there are numerous HMIS training materials available, the authors are not aware of any digital data management plans that are in place or how the role out of the eHMIS is working beyond SNNPR.

Several quality control and assurance processes are documented but the problems in data coverage and consistency as well as other sector reviews, suggest that more can be done to improve data quality.

Other resources: The cost of the HMIS is decentralised and we do not have any conclusive information on these costs or how they are financed at this point. The development of the eHMIS and its roll out in SNNPR was supported by the USAID's MEASURE Evaluation programme. It is not clear if the eHMIS could be rolled out nationally under existing budgets.

5.2.6 Education Management Information System (EMIS)

The Education Management Information System falls under the Ministry of Education, which maintains the master database at the Federal level. The majority of the system is driven by reporting processes like the HMIS and operates primarily on paper.

Information: Until this year, the data collected and reported on WaSH in Schools remained rudimentary and included:

- Access to water
- Access to a tap
- Access to a well
- Number of boys latrines
- Number of girls latrines
- Number of shared boy/girl latrines

The data collection forms have been updated with UNICEF support and now include more information, for example functionality and reliability (functionality during the week), in order to improve the evaluation of WaSH in Schools in Ethiopia. Some key indicators in the Education Sector Development Plan IV (ESDP IV) are:

- Percentage of schools with a water supply (*)
- Ratio of pupils and staff per tap
- Percentage of schools with latrines (*)
- Percentage of schools with separate boy and girl facilities
- Percentage of schools with clean toilets
- Percentage of schools with hand washing facilities
- Latrine seat to student ratio

The indicators marked with an asterisk (*) were included in the Education Statistics Annual Abstract of 2005 E.C. (2012/13 G.C.), which is reported to parliament. It is not clear if the data collected by MoE has been matched to that of the separately collected NWI in 2010 and the recent data collection in the Somali Region.

Generally the indicators and data collected are clear to users and paper forms are used to collect the data from schools on an annual basis. The new questionnaire does not perfectly align with the water infrastructure types used by MoWIE but are unambiguous.

The frequency of reporting annual and coverage is nationwide and meant to represent the data of all schools in the country. Annual abstracts are developed at Regional and Federal level. Data is reported up to each level with access to local reports, e.g. in the *woreda* Education Office. As data is reported on an annual basis, it does not require additional version control or conflict resolution.

Technology: The database in the ministry is a Microsoft Access database and was developed by UNESCO, who provided support until January 2015. The Access database DB could be used to create a dynamic connection with other sources of WaSH information such as the WaSH MIS, however it is difficult to further comment on this without additional information or access to the database. Below the federal level, the regions encode the data, store and managed it on paper and in Microsoft Excel and then submit the information to the Federal MoE. At the Federal level, the regional datasets are compiled to create the Annual National Update. The information is stored and managed in Microsoft Excel and on the offline servers within the EMIS & ICT Directorate.

Currently, the excel sheets offer the most configurability but it is not clear how configurable the Access Database is at this point without external support. It is worth noting that UNICEF has sponsored the implementation of the Rapid Assessment of Learning Spaces (RALS) at regional level with the potential to make it accessible via a web interface. The system includes a section on WaSH indicators and is expected to become part of the EMIS. The decentralisation and diversification of systems in the education sector seems to follow the same trend as in the health and water sectors.

Access is primarily via paper files, reports or on computers in the regional or federal offices. User security is enforced informally at most levels while there may be user controls on the access database and RALS. Data security is currently poor as there is no formal backup process. However, the servers are in a locked room and accessed only by EMIS Experts at Federal level and the Director of EMIS & ICT.

Processes: Paper questionnaires are used by school principals and reported to the *woreda* Education Office. The regions then collect all the data, validate, and encode it. While reporting occurs on an annual basis, currently there are long delays to allow planning for the following year based on the previous year's data. Each level is responsible for their reporting and maintaining their own records.

Woredas do not currently create the education plans but rather these are prepared at regional level and then cascaded to *woredas* where adaptation takes place. One exception is where UNICEF has been supporting the practice of collecting, analysing and producing bi-annual EMIS data in 115 *woredas* since 2012. It is yet unclear as to what extent WaSH data is being used at *woreda* level.

Reporting and dissemination takes place on an annual basis at regional and federal levels. Indicators are under review and currently being updated as the next sector plan is being prepared.

Objectives and values: There is system ownership within the Federal MoE and the regional bureaus. At the federal level the Access database has been managed by UNESCO and capacity has not yet been created in the ministry to manage the database. The reporting process depends strongly on paper forms in Amharic, which poses no problems for the schools. The introduction of digital tools at *woreda* level is just beginning and there are similar infrastructure and resource constraints as in other sectors. Digital tools also potentially challenge users more than the paper based tools.

There is willingness and expectation to share the results of annual reports and these are published on annual basis at federal level on the website. These results are based on reports rather than, for example, a web based EMIS. If the Education sector can switch to digital tools, that are acceptable for schools and other administrative tiers (including the federal level), perhaps phone-based, there could be a substantial reduction in delay between the reporting of data and availability of aggregated analysis in annual reports.

Staffing and skills: Within the EMIS and ICT Directorate of Ministry of Education there are EMIS Experts at federal and regional levels. Currently, there is no capacity within the MIS team to change the Access database and support will be required. It is not clear if this is due to the nature of the source code (closed or poorly written) or lack of familiarity with Microsoft Access database development.

Management systems and structures: As with the HMIS, local management is responsible for reporting and the management of their local information systems. There is currently no web-based system shared across the different administrative organs. There are clear lines of reporting and roles and responsibilities and decision making starts at the regional level with the *woreda* plans and culminating in the annual operational plans.

Other resources: Most of the resources for monitoring at local level are captured in existing budgets. The Education Sector Development Plan (ESDP) IV had no clear line for reporting/monitoring in the budget, although it called for a "Strategic Monitoring Sub-Committee" responsible for the comprehensive monitoring of the plan implementation. The regions have some autonomy in terms of resource allocation for monitoring and due to limited information available it is yet not possible to further comments on the costs incurred by regions.

5.2.6 Financial tracking using IBEX

Although financial data are reported through MoFED's IBEX system there are currently limitations to value-for-money or similar analyses as a result of the numerous financing channels and modalities, the standard budget codes used, methods of aggregation that are used as data are reported and the partial implementation of online financial reporting. The costs and effort involved in value-for-money studies are consequently high with most data needing to be re-collected from local sources e.g. *woredas* or regions. A recent study by Oxford Policy Management (Prat et al., 2015) has made specific recommendations to address gaps in data requirements for value-for-money analyses on which the OWNP M&E support can build.

5.2.7 Non-Government Systems

This diagnostic report has also examined three other *woreda*-level data collection and information management systems supported in different *woredas* by CoWaSH, ICRC, and WaterAid. ICRC has supported the reporting of water monitoring data from *woreda* to regional level since August 2010. Since 2012, ICRC supported the

adaptation of a computer and mobile-based monitoring tool with cloud backend called Majella to collect data on water in Tigray. Collection and aggregation of data from *woreda* to regional level was identified as a critical gap. WaterAid have trialled the Water Point Mapper in 10 *woredas* and shared the results in 2013. They have more recently repeated the exercise in the Burie Zuria *woreda*. In the last year, CoWaSH has implemented a water point data monitoring system based on paper forms and entry into local Excel sheets.

Information: All of these systems collected information for *woredas* and adapted the data collection formats to match the local requirements. It is not yet clear how the Tigray parameters and indicators are aligned with the NWI or the WaSH MIS.

In the case of the WaterAid and the CoWaSH systems, the data collected has been formatted to match the water point data collected in the NWI so that the same indicators could be tracked. It should be noted that the CoWaSH data collection forms are accompanied by clear and consistent instructions, data collection formats and clarifications regarding technical issues such as the geographic position formats and datum which is not the case for many of the other WaSH information systems. The GPS units commonly found at *woreda* level (also used in the NWI) used Adindan datum and Universal Transverse Mercator (UTM) format. If mobile data collection features of Majella are used in other mobile data collection systems such as Akvo FLOW, the format would be WGS84.

The frequency of data collection is still an issue. The CoWaSH data is planned to be updated annually, but it is still in its first year. The WaterAid data has only been collected on an ad-hoc basis so far. ICRC has reported that data is collected irregularly but updating is still a problem.

In all cases, problems have been identified with using the CSA identifier, naming conventions and using the identifiers for facilities in the NWI. As a result, each system has coded records in a different way, which will be a challenge for interoperability and combining data sets.

Technology: A number of technologies have been used by the various NGO and donor supported data collection systems. These include:

- The use of paper forms (all) and mobile data collection tools (Majella)
- The use of Excel for aggregation and analysis (Majella, WaterAid and ICRC where there was capacity) and OpenOffice Calc (COWaSH)
- Web-based/cloud data management (Majella)
- GIS software (QGIS, ArcGIS, Google Earth)
- *woreda*-NET broadband
- Wireless dongles (e.g. EVDO)

In Tigray, the data collected is also stored in Excel sheets at *woreda* level. According to COWaSH, which has a wider geographical diversity, it was found that the use and familiarity of Excel at *woreda* level is inconsistent. Electricity and connectivity are major barriers. Typically data is collected on paper and then aggregated in the digital tools. In all cases, external support was provided for the analysis of the results using GIS software and mapping tools. COWaSH encourages usage of open source software to minimise risks associated with use of pirate software (poor functioning, possible deactivation and illegality).

Processes: In the WaterAid supported areas, it has been found that the health extension workers are a key resource and it is important to build on the existing government structure. It would be costly to pay the *woreda* staff per diems to collect all the data in the 20 *kebeles* (WaterAid, 2014). Rather *woreda* staff, according to the report, should be primarily responsible for encoding data and conducting analysis. The report suggests that the Health Extension workers at each *kebele* Health Office, who already report health activities regularly, may be used to collect water point data. The *kebele* managers concerned with the GTP plans may be another source of information on water supply and sanitation.

ICRC supported the training of a government water resource expert in each *woreda* of Tigray who would be responsible for water point data. They collect the water point data on paper and then connect to the internet in the *woreda* office. 16 offices are connected to *woreda*-NET broadband and the other 14 use a dongle for internet access. Cloud-based Majella database is used for data entry. Water Bureau experts also receive the data and carry out analysis to show the distribution of points and highlight equity issues. ICRC has provided technical support for generating maps, and has also provided GPS devices and plotters. At *kebele* level, are “*kebele*

Responsible” technicians who are responsible for collecting water point data from up to four *kebeles* and do so from WaSHCOs. They only report issues that they cannot resolve themselves.

In CoWaSH, *woreda* staff should record the data from previous year and add new CoWaSH facilities. The data collection is meant to take place during the whole year and during regular field visits. Quality checks take place at each level of reporting. The initial checks are for handwriting, missing fields, and formatting. The data is then submitted to the CMP supervisor who conducts additional checks, e.g. spelling of names and identification of duplicates. Finally the regional support unit also checks for consistency and that the number of facilities correlates with the annual report. The CoWaSH federal office is responsible for analysis, report generation, updating the formats and then returning back to the Regional Support Units. In the case of CoWaSH, there are specific instructions to use the *woreda* WaSHCO documents in the CMP supervisor office and only collect data from the field when required.

Objectives and values: In each case, new technologies were introduced but none of the systems progressed beyond paper-based data collection in the field with GPS devices which was technically possible. WaterAid have used the Amharic language NWI paper based data collection forms for the Water Point Mapper exercise in Burie Zuria. CoWaSH and ICRC supported data collection using the existing data collection formats combined with English language information systems (Excel sheets and Majella respectively).

The ownership of the technologies is still contentious and it is uncertain if any of these systems would be maintained next year without continuing external support.

Staffing and skills: There is regular turnover of staff in local government and great variation in the ability of *woredas* and regions to work with ICT. WaterAid found that in order to cope with normal staff turnover at *woreda* level, regular refresher training on the use of GPS devices and Water Point Mapper is required. CoWaSH is only in its first year, but has noted that experience in using Excel at *woreda* level is limited. WaterAid reported a lack of skills and capacity at *woreda* level for maintaining computer systems and dealing with viruses. ICRC has been supporting the Regional Bureau of Tigray GIS expert to produce some of the maps using the systems available and this suggests that the skills and infrastructure required for high level analysis may not always be available at regional level.

Management systems and structures: Local management has been critical in these projects. In the case of ICRC, the system was provided to support the Tigray Regional Water Bureau and *woredas* since 2013. WaterAid supported *woredas* for the creation of their own water point inventory led by the *woreda* staff with support from *kebele* staff and health extension workers. The CoWaSH system cuts across the CoWaSH *woredas* and could be seen as a prototype for an OWNPN inventory tracking system and is currently driven by project reporting requirements. So far external support has been required to fully maintain these systems.

Other resources (time, money): In each of these systems, external resources have been provided to ensure data collection, analysis and system maintenance. In the case of CoWaSH, system costs are covered by the programme. WaterAid has supported the use of Water Point Mapper as a trial for a system that is yet to be institutionalised. In Tigray, the Water Bureau has agreed to start to cover the costs of Majella (USD 3000 / year) but it appears that the budget has not yet been approved.

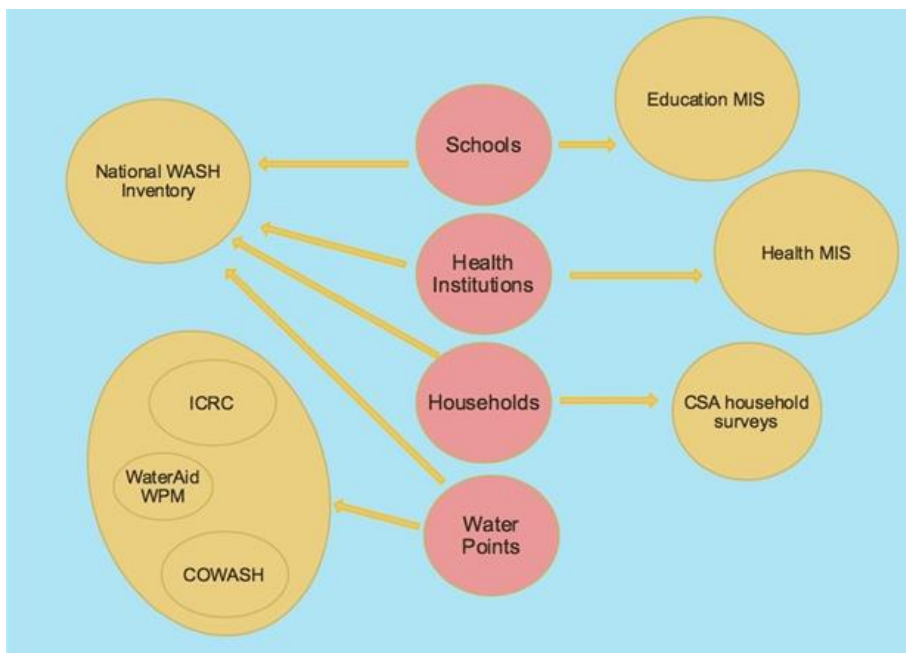
For examples of stakeholder initiatives in OWNPN M&E refer to Annex 4.

5.3 Review of Current WaSH Data Sources and Periodicity

5.3.1 Key data sources

Information used to inform the monitoring activities related to WaSH for the Ministries of Health, Education and Water, Irrigation & Energy originate from three categories of sources: water assets, sanitation and hygiene services, and households (refer to Figure 3).

Figure 3: Key data sources for WaSH M&E

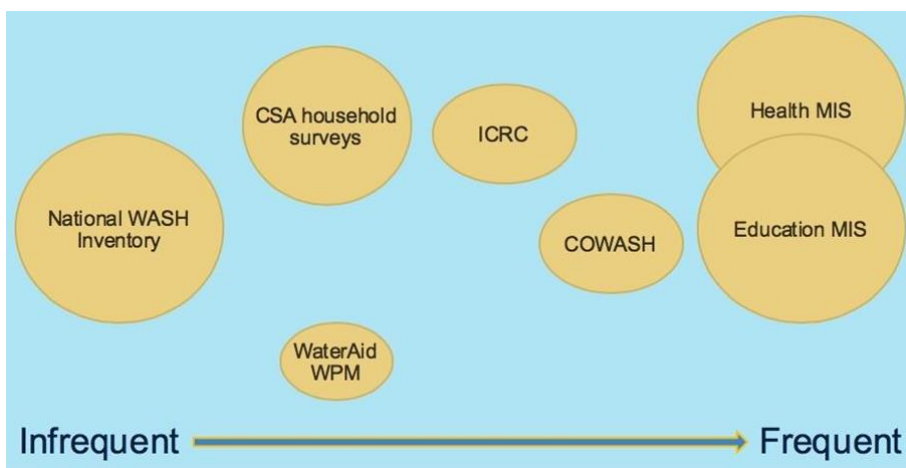


Source: IRC (developed using the information collected)

5.3.2 Periodicity of data

The frequency of data collection amongst systems, drawing data from the sources identified above, varies greatly. Some systems receive more regular flow of information than others. In Figure 4, we have identify HMIS and EMIS as sources of WaSH data which are frequently updated. In both cases there is a regular and reliable flow of information from community / health centre / school level into local government and into a common database. In both of these cases existing government reporting mechanisms are utilized to capture and process the data. The processes adopted have been developed over time and modified using the learning experiences gained.

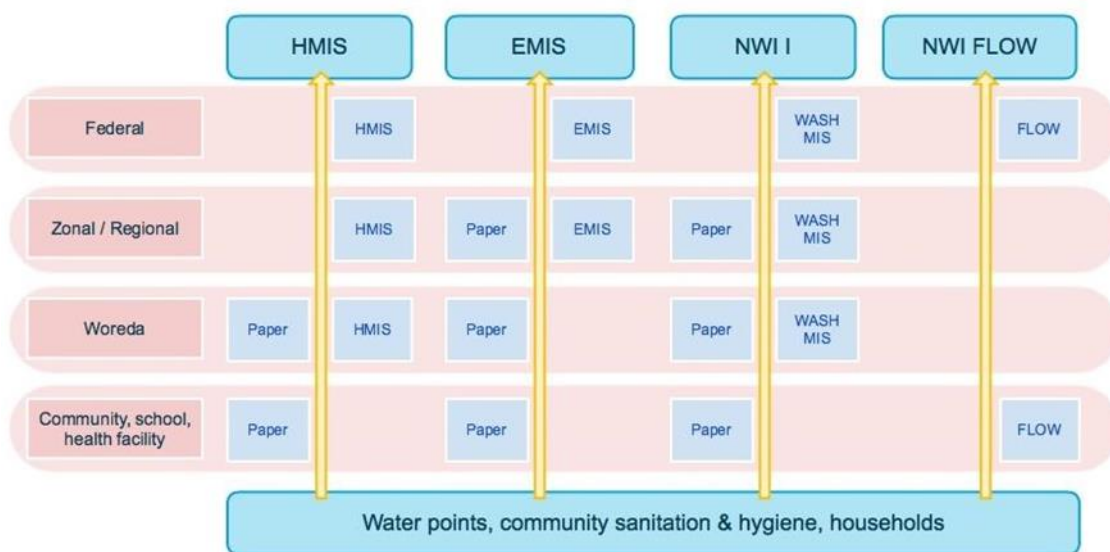
Figure 4: Update frequency of WaSH data



Many of the national level stakeholders consulted found it difficult to specifically identify the data needed for their mandates. For example is it data on accessibility, performance of WaSHCOs or WTTs, functionality of water systems, or data on health impact. Many would say that all data sets are needed but research has shown that monitoring ‘what you would like to know’ results in over-collection and data not being used (Norman and Frances, 2013). Only by having a clear perspective on decision making functions at each level, either for planning, resource allocation or policy adaptation, can the actual data that needs to be collected and analysed be determined.

Initiatives such as water point mapping often lead to a dramatic increase in the amount of data, but this data still needs to be processed, interpreted and used to make decisions and take actions. This important difference between data collected and useful information must be recognised. An example of this is the Field Level Operations Watch tool, open mapping software developed by Water for People to track the condition of water points (also known as Akvo FLOW), in which one of the key challenges identified was data management. An excessive amount of data is currently being collected by the software and it is difficult to identify which of this data is actually actionable (CoWater International & University of Cape Town iComms, 2014). Moreover, for the data systems studied in this report, paper-based instruments are the dominant technology (see Figure 5 below) and there are differences in the entry points where paper based data is converted into a digital format for use in an IT enabled system.

Figure 5: Paper based tools and different entry points into IT systems



We have found high expectations for what data can do. One example of this is water-point mapping data – information that includes the geo-location, of every water point within a *woreda* or region. Stakeholders consulted have expressed a strong interest in having access to this data. But the information from NWI and the Somali Regional update has not been widely used, and WaterAid have also redesigned their water point mapping efforts to link more strongly to use of data in *woreda*-wide planning. At the *woreda* level it is likely that there is good knowledge about the distribution and status of water points, and the limited capacity at *woreda* level for analysis prevents much water point level analysis and interpretation of results. So this level of data is not widely used at *woreda* level. Beyond the *woreda* level, in the regions and at the federal level, the information required is aggregated data of the lower administrative levels and not information about individual water points.

Systematic monitoring for improved planning and reporting is not yet a routine. There appear to be lack of standardised time schedules, reporting formats and regular meetings to analyse data and to take data-based decisions.

During discussions with MoH and MoE it became evident that there was little knowledge about the data available within the MoWIE or the National WaSH Inventory or sharing of relevant information across ministries. The Ministry of Health has recently completed establishing a geo-referenced inventory of health centres aimed at capturing the location of each institution. However much of this data is already available within the NWI. Similarly the MoE has recently undertaken an exercise to geo-locate each school in the country. This data can also be found in the NWI.

Our consultations suggest that there is little knowledge about the plans and efforts to strengthen the M&E of the OWNP amongst some members within the MoH, MoE, including MIS departments which highlight the scale of the challenge and the need for enhanced communication across ministries and other stakeholders.

5.3.3 OOWNP Key Performance Indicators and existing data sources

Table 3 below assesses principal Key Performance Indicators (KPIs) defined for OOWNP and maps them against existing sources of WaSH data in Ethiopia. Programme KPIs are mapped against applicability (Rural (R), Urban (U)) and assess if existing monitoring data is available – fully or partially – or not available.

With respect to the OOWNP KPIs there are some critical gaps, for example with respect to monitoring functionality, quality, institutions, equity, gender and finance. Although indicators are not fully aligned, the HMIS and EMIS systems provide data on critical indicators for sanitation and WaSH in schools that have not yet been reported as well. Further discussion of sanitation indicators is provided in box 3 in Annex 4.

Table 4: OOWNP KPIs and current data availability

No	Indicator	Definition	Applicability	Existing routine national data sources				Comments
				● fully measured	○ partially measured (e.g. using proxy indicator)	[blank] little or no routine measurement		
				NWI	Sector monitoring (W, H, E)	Nationally representative household surveys/ census	Impact studies/ special studies ¹	
1	Access: Percentage of people with access to 15 litres per capita per day within 1.5 km radius in rural areas and 20 litres per capita per day within 0.5 km radius in urban areas.	Proportion of people with access to 15 l/c/d water supply source within 1.5 radius for rural and 20 l/c/d within 0.5 km radius for urban (<i>kebele</i> , <i>woreda</i> , Regional, National Level)	R, U	○	○ W	○	●	Proxy indicator (improved source), users estimated per source type. HH surveys report time to collect rather than distance. Only special studies measuring water quantity.
2	Functionality:							
	Percentage of improved water supply schemes that are functional (rural)	Proportion of improved water sources that are functional at time of spot-check	R	●	○ W		●	<i>woreda</i> water offices may collect this data but rarely reported/ consolidated and may be out of date
	Percentage of TWU supplying water for more than 6 hours a day for all customers (urban)	Number of towns supplying water more than 6 hours a day to all customers divided by total number of towns	U				●	
	Percentage of non-revenue water	Difference between water supplied and water sold expressed as a percentage of	U	●	○ W			TWUs typically collect this data but not generally

TASKS 1 AND 3 / DIAGNOSTIC REVIEW REPORT

		net water sold						consolidated and reported
3	Quality:							
	Percentage of acceptable water discharge quality tests	Proportion of water quality tests complying with national water quality guideline	R, U		○ H		●	e.g. Rapid Assessment of Drinking Water Quality (RADWQ) by WHO
	Percentage of acceptable wastewater discharge quality tests	Proportion of wastewater discharge quality complying with WHO guidelines	R, U		?			
4	Sanitation: Percentage of people with access to improved human excreta removal	Proportion of people with access to improved human excreta removal within community (<i>kebele</i> , <i>woreda</i> , Regional, National level)	R, U	●	● H	●	●	Includes shared and private facilities
5	Hand washing: Percentage of households with access to hand washing facilities	Proportion of households with access to hand washing facilities in community (<i>kebele</i> , <i>woreda</i> , region and national level)	R, U	●	● H		●	NWI unlikely to repeat HH level survey (form 4)
6	School WaSH:							
	Percentage schools with improved water supply (tap/100 student ratio)	Proportion of schools with access to adequate water facilities in <i>kebele</i> with tap/100 student ratio (<i>woreda</i> , region and national level)	R, U	○	○ E		●	NWI includes presence/absence only
	Percentage schools with improved human excreta removal (stance/40 female/75 male students)	Proportion of schools with access to adequate human excreta removal in <i>kebele</i> stance/40 female student/75 male student ratio (<i>woreda</i> , region and national level)	R, U	○	○ E		●	NWI and EMIS give information on separation boys/girls (yes/ no) but not disaggregated stance figures
7	Health WaSH:							
	Percentage of health facilities with improved water supply	Proportion of health facilities with access to adequate water supply facilities in <i>kebele</i> (<i>woreda</i> , region and national level)	R, U	○	● H		●	NWI includes presence/absence only
	Percentage of health facilities with improved human excreta removal	Proportion of health facilities with access to adequate water supply facilities in <i>kebele</i> (<i>woreda</i> , region and national level)	R, U	●	● H		●	
8	Management:							
	Percentage of active WaSHCOs/ Hygiene and Sanitation	Proportion of active WaSHCOs/Hygiene and Sanitation Community Groups	R				●	

TASKS 1 AND 3 / DIAGNOSTIC REVIEW REPORT

	Community Groups							
	Percentage of active Water Boards	proportion of active Water Boards	U	○			●	NWI includes indicators on staffing and finances that may provide proxy
9	Gender:							
	Percentage of WaSHCOs/ Hygiene and Sanitation Community Groups with 50% of members women at decision making position	Proportion of women members at decision making position of WaSHCOs/health and sanitation community groups	R				●	
	Percentage of water boards with 50% of members' with women at decision making position	Proportion of women members at decision making position of Water Boards	U				●	
10	Equity: <i>woreda/kebele</i> deviation from the national average	Mean deviation from the average number of persons per improved water point by <i>kebele</i> and <i>woreda</i> . Same way by <i>woreda</i> and region as well as region by the national	R	○				Population distribution data is generally not available so only crude estimates possible
11	Capital Cost: Per capita investment cost	Difference between per capita costs for water supply at the beginning of Program and at intervals during the Program	R, U					
12	O&M : Percentage of WaSHCOs covering O&M costs	Proportion of WaSHCOs covering O&M costs in the <i>kebele</i> (<i>woreda</i> , region and national)	R				●	
	Percentage of water utilities covering O&M and replacement costs	Proportion of water utilities covering O&M and replacement costs by region and national	U	○			●	
	Impact							
13	Percentage of under-5 children with mortality rate decrease	Under-5 child mortality divided by the number of under- 5 children in the <i>kebele</i> (<i>woreda</i> , region and national)	R, U			●	●	
14	Percentage of under-5 children with diarrheal disease decrease	Number of under-5 children with diarrheal diseases divided by the total number of under- 5 children in (<i>kebele</i> , <i>woreda</i> , region and national)	R, U		○	●	●	
15	Average time saving due to	Difference between time taken to fetch	R	○		○	●	

TASKS 1 AND 3 / DIAGNOSTIC REVIEW REPORT

	improved water availability within 1.5 km distance	water before the new water point construction and after construction						
16	Percentage increase in enrolment of female students in school	Difference between female students after construction to number of female students before construction divided by female students before construction of water supply and sanitation facilities	R, U	●	● E	○	●	
17	Percentage decrease in dropouts among female students	Difference between female student dropout before construction to female student dropout after construction divided by female student dropouts after construction of water supply and sanitation facilities	R, U	●	● E	○	●	

Source: OWN Programme Operational Manual, September 2014 (R: Rural, U: Urban)

5.4 Comparison of Current M&E Environment with OWNP

The current status of MIS implementation is a result of parallel approaches by different sector actors. There are several national systems, the WaSH M&E MIS, HMIS and EMIS, that are intended to become part of or feed into the OWNP MIS. The multi-level pilots supported by CoWaSH/CMP, ICRC, and WaterAid show potential and each provide important lessons on how to roll out a national, decentralised but coordinated OWNP MIS. These systems were designed to solve problems in the context of a specific project and/or specific *woredas* but each was designed for replication.

The HMIS and EMIS offer additional opportunities and capacity to learn and reflect on the implementation of a national OWNP MIS across the country based on reporting processes. The different federal management information systems and the parallel decentralised approaches to WaSH monitoring together can be considered an emerging OWNP MIS.

The section below provides a comparison across the systems, using the Design-Reality Gap components, and in relation to a federal and decentralised OWNP MIS.

5.4.1 Information

The data stores and the data flows of the various systems could be aligned to the extent that they have a minimal level of compatibility between disparate administrative processes feeding into Water, Health and Education administrative organs. This is crucial for some interoperability between the existing management information systems.

Ideally, the systems should share compatible identifiers for monitoring records (water scheme IDs, *woreda* IDs, school IDs, etc.) with a method to convert one MIS identifier to the correct OWNP identifier. Currently, there are no shared identifiers across the systems. In some cases, the CSA naming and identification conventions are used as part of an identifier system but they are not consistently used because these identifiers are subject to frequent changes in administrative organs such as the division of *kebeles*. In most cases, administrative areas are referred to by name instead and this means joining data sets entails laborious manual exercises to deal with different names and lists of administrative organs which may or may not be up to date. In addition, the systems do not have any provision to store foreign IDs from other systems.

The NWI⁴, WaSH M&E MIS, EMIS and HMIS all have slightly different ways of defining water and sanitation parameters, including how facilities and functionality are recorded. As a result, there is not a perfect one-to-one match across the systems. In some cases, alignment should not be very difficult. Generally, there is a problem of different instruments defining monitoring tools slightly differently without reference to one another and this may also reflect a project-driven culture. The clearest replicable parameters have been the NWI parameters and indicators, likely because of their wide familiarity and use in practice. However, there has not been alignment with the health and education MIS.

Currently there are likely to be problems combining the different data sources into a single summary table that would provide valid results below the regional level. Each system currently maintains its own population data sets and this could be the source of differences in coverage calculated rather than the parameter of interest. It seems that the eHMIS provides the most complete solution for managing population and administrative data but the WaSH M&E MIS also has a strong feature set albeit rarely used. CSA and decentralised organs could provide a naming and coding convention that allows rapid changes and robust codes and provide an authoritative and accurate set of population data that can be used as a common denominator for calculating indicators. WaSH M&E MIS, NWI, EMIS and the HMIS will need to coordinate their reporting framework for their KPIs related to WaSH so that the reports produce the same or similar results. This also relates to using the same population data for administrative regions.

Most WaSH monitoring systems have suffered from irregular reporting until now and frequency of data is a problem. Reporting periods meeting minimum planning needs for OWNP with ideally temporal alignment (quarterly reports, annual reports from same time and/or offering a possibility to compare trends over a known time difference) would strengthen the ability to coordinate projects cutting across the MIS systems. The HMIS and EMIS

⁴ The NWI is one tool to collect data for WaSH MIS but is given emphasis as successful national integrated data collection exercise across WaSH.

have managed to establish lines of reporting on a regular basis that meet their annual reporting and even performance management objectives and may offer replicable models as suggested by the WaterAid experience in Zurie Buria.

Most of the existing systems have operated in silos and organised data collection, analysis and dissemination on an ad-hoc, annual or quarterly basis without tracking changes over a single record over time. In many cases, *woredas* and lower level institutions have maintained their own files for this purpose. As relational database systems like the eHMIS or WaSH M&E MIS become more prevalent and data is increasingly shared across systems for the sake of OWNPN reporting, there will be a need to resolve versioning problems, duplicate records, and conflicting data. In addition the source of data will need to also be made clear when, for example importing data from one MIS into another in order to track problems when they occur.

5.4.2 Technology

Currently, the main technology used across the systems with the most frequent reporting and decentralised processes is paper-based as shown in the EMIS and HMIS. Even ad-hoc data collection in Tigray and during the NWI 2010 has been largely paper-based. The paper-based systems have been universally slow in terms of getting data to decision makers in time for plans to be adapted in a relevant manner. For example, the EMIS has not been able to create a plan based on data from the previous year.

ICT systems are being gradually introduced and most strongly at regional and federal level. Currently, several approaches are being trialled from server-based databases (eHMIS) to Access DBs (EMIS) to a web-based RDBMS (WaSH M&E MIS). In all cases, Excel sheets are still very prevalent at both federal and regional levels and seem to be the de facto method for exchanging data. Each of these database systems has suffered from either a lack of use, maintenance and/or depended on project-based resources for continuing operation. It is clear that paper and Excel have offered government institutions a greater level of configurability and autonomy than the externally produced tools and at an affordable cost. Interestingly, a number of these advanced database systems are quite advanced in usability and enabling administrators to configure data collected and how indicators are calculated, in particular the eHMIS in SNNPR.

As ICT is increasingly used, the time required to go from data collection to the use of data in decision making at higher geographical levels should decrease dramatically. The advantages of ICT will need to be balanced with the practical realities of how data is used and stored locally as most actions are taken at local level where electricity and connectivity as well as the maintenance of ICT are bigger challenges. In discussions with CoWaSH, a lack of *woreda* capacity to use Excel was identified as one of the key barriers.

Box 3: Experience with mobile data collection for WaSH in Ethiopia

ICRC: ICRC started mobile data collection, as a pilot, in two *woredas* in Tigray but did not continue. The technology was new and the team did not want to encourage something which could not be sustained beyond project funding. The team decided to take incremental steps: get the people and processes working before introducing the ICT.

MoWIE: MoWIE collected the NWI data for Somali Region in 2014 using FLOW, a smartphone application for data collection. The results are on an online dashboard with some basic analysis on the KPIs.

MoH: MoH has recently started piloting a mHealth initiative for Health Extension Workers to collect and report data. Currently designed to send selected number of indicators to the phone for priority indicators. There is a free line for HEWs to send reports which can be directly received in the system. Also they are planning to distribute a tablet or PDA (something considered as appropriate for users) for completing the full reporting from health posts.

WaSH MIS by PUT: The developers of the WaSH MIS have designed a mobile application for data collection using Android phones. At the time of writing this report the tool was being tested and appears to have reduced functionality when compared with other open source tools available. For example, the user is not currently able to edit the data collection formats, there is no functionality for designing and developing forms. The client would be reliant on the developers for any changes even to the data collection formats.

Mobile data collection tools for WaSH have been trialled by some NGOs and there has been one large scale exercise during the 2010 Somali Region data collection. Mobile systems do not seem to be as generally pervasive in Ethiopia as in other African countries, most likely because of coverage and the fact that there is only one mobile

network operator. In the health sector, there are trials to implement a smartphone based DSS system, which would also provide decision makers easy access to the analysis of key performance indicators. Over the longer term vulnerability of mobile data collection devices needs to be assessed. Touch screen mobile phones are more prone to wear-and-tear and to thefts compared to robust and less interesting GPS devices for example.

Data security and user security seem to be secondary concerns at the moment as most data is not yet in use and most systems, such as paper based systems, require local management without access to complicated ICT infrastructure that depends on electricity. As infrastructure improves in the coming years, it will become increasingly important to start to address these issues. Already the database systems in place seem to enforce user accounts but the most actively reported data is still operating on locally managed paper and Excel based processes. Developing a culture of more open access to data and audit trails to ensure validation may eventually lead to less stringent user security requirements.

5.4.3 Processes

Most data collection in the sector can be divided into a spectrum of two different styles of data collection, aggregation, analysis and dissemination. The first is ad-hoc baseline and/or inventory updating efforts which entail high resource consumption for enumerators to actively map out all facilities or other objects of interest. These efforts provide a reference point against which reports and plans can be made. The NWI is largest WaSH example but the *woreda* and regional level systems supported by WaterAid and ICRC are other examples.

The second style is based on performance management and reporting responsibilities in which management at each level is given the responsibility to send information up the chain of command (and resources allocation). This has been strongest in the EMIS and HMIS where there are many existing institutions at local level with clear reporting requirements (health facilities and schools). In the health sector, there is a strong system of performance review that cascades up to the federal level with the most important reviews taking place at facility level. In general regions have been key actors and often determine the reporting priorities based on their interpretation of national policies and their roles and responsibilities. This style has been provided a better frequency of information but the coverage and consistency of that information across areas is more patchy as it varies with time and local priorities. It is unclear if the local management of water facilities could also establish the same level of systematic reporting requirements.

It may be that a combination of inventories and reporting requirements that are explicitly tied to one another may be the most effective way to monitor OWNPs. The ICRC system does this to some extent by encouraging only new data to be collected in the field and otherwise to report the data from the previous period. Ultimately, these processes are greatly affected by the management and culture of the institutions involved.

5.4.4 Objectives and values

In terms of the localisation of technology and familiarity with technology, there is a clear trend in which paper and Amharic language tools are used at local level and English seems to be preferred from *woreda* level up. This becomes particularly strong with the application of ICT tools where presumably the support of Amharic is not universal. This is perhaps another area that has encouraged continuation of paper based reporting at local levels and discouraged the application of ICT below *woreda* level. Language will certainly be an issue if community managed water facilities will be given reporting requirements akin to those found in schools and health facilities.

Smart phones are increasingly used by staff in *woredas* and this is making it quite easy to train staff in the use of mobile data collection tools such as in the Somali region. Indeed, the primary trade off will be in terms of risking to take away the ownership of the replaced paper trails that fit into local hierarchical/management arrangements with a cloud technology managed from distance. Giving access to data and DSS on mobiles is a step that could offer a more appropriate ICT solution for areas with limited connectivity and electricity but they have not yet proven to be as acceptable or useful as paper.

5.4.5 Staffing and skills

Regular training is required to address turnover and to ensure that an MIS functions, especially as changes take place in tools, indicators, and performance review processes. This has been a central part of all the MIS currently in use. There is a natural tension between the desire to design centralised system that may require less management and a need to meet the needs of decentralised and devolved decision makers in the sector. In any case, the competency to manage users, data, data cleaning and validation will need to be strengthened and require retraining as new tools are introduced.

As ICT systems are introduced, skills will need to be transferred to use and maintain the tools. There is still a significant barrier to the introduction of ICT tools and their maintenance at *woreda* level and below due to the lack of skills and familiarity with ICT tools.

5.4.6 Management systems and structures

The ownership of the systems is split across ministries and even regions due to the decentralised nature of the Ethiopian government. In some cases, it has been development partners and/or NGOs that have sponsored the use of the system and this has posed some challenges to full ownership subsequently. The diversification of systems is partly based on the fact that many are introduced in the context of a specific project. There is a need to update the OWP M&E plans for data collection, data management, quality assurance, and technical support to match the current state of MIS across the three implementing ministries involved and MoFED. If these plans could be developed in a collaborative fashion and start to address some of the key technical and process issues related to making the MIS interoperable and improving the frequency of information then the OWP would already have a strong basis with the existing systems in the sector. There also needs to be more explicit planning of the real MIS and M&E costs involved in maintaining working systems and relevant data across the board. It is even possible that some cost savings could be made by sharing resources related to data collection and data management at decentralised levels, e.g. using health extension workers for both water and health data collection or using similar reporting tools. Sector ministries are responsible for their own M&E systems, but NWCO is responsible for the whole national WaSH M&E and submission of aggregated reports to MoFED and donors/NGOs.

5.4.7 Other resources

While the 2010/11 NWI has perhaps provided the most consistent data set based on clearly understood parameters and indicators, it did so at a very high cost and could not report results until two years after data collection. The major benefit of the exercise has been in creating a common data set that is well understood and has provided a basis for the various data collection initiatives in the sector supported by UNICEF (Somali NWI), WaterAid and CoWaSH among others. In many ways, the NWI was like a census and the need to repeat it on annual basis, as was originally envisioned, may need to be rethought. While this diagnostic could not easily find the costs related to HMIS and EMIS because of their decentralised reporting responsibilities and resource allocation, it is clear that this style of MIS based on reporting responsibilities can help distribute the data collection burden and accomplish a high frequency of data updates. Both still have significant information gaps but the fact that the data can be used at local level, even if it is not all possible to aggregate in regions and at federal level, is a strong advantage of this system over only a census style data collection.

The OWP M&E programme could use some clear costing for the less frequency inventory/census style data collection combined with budget lines to support regular reporting processes combined with performance reviews on the basis of defined indicators. Spending on inventories should not be done at the expense of regular reporting. For example, it may be that mobile technology is also the most appropriate ICT for regular reporting and monitoring from local levels based on reduced power requirements and improved access to connectivity. If that is the case, the purchase of smart phones should actually be done for the sake of reporting and be used in the inventory rather than the other way around (as in Somali region). In addition, there should be sufficient resources to implement and maintain this technology and sufficient local ownership. If phones must be transferred back to regional or federal level then they will be of limited value.

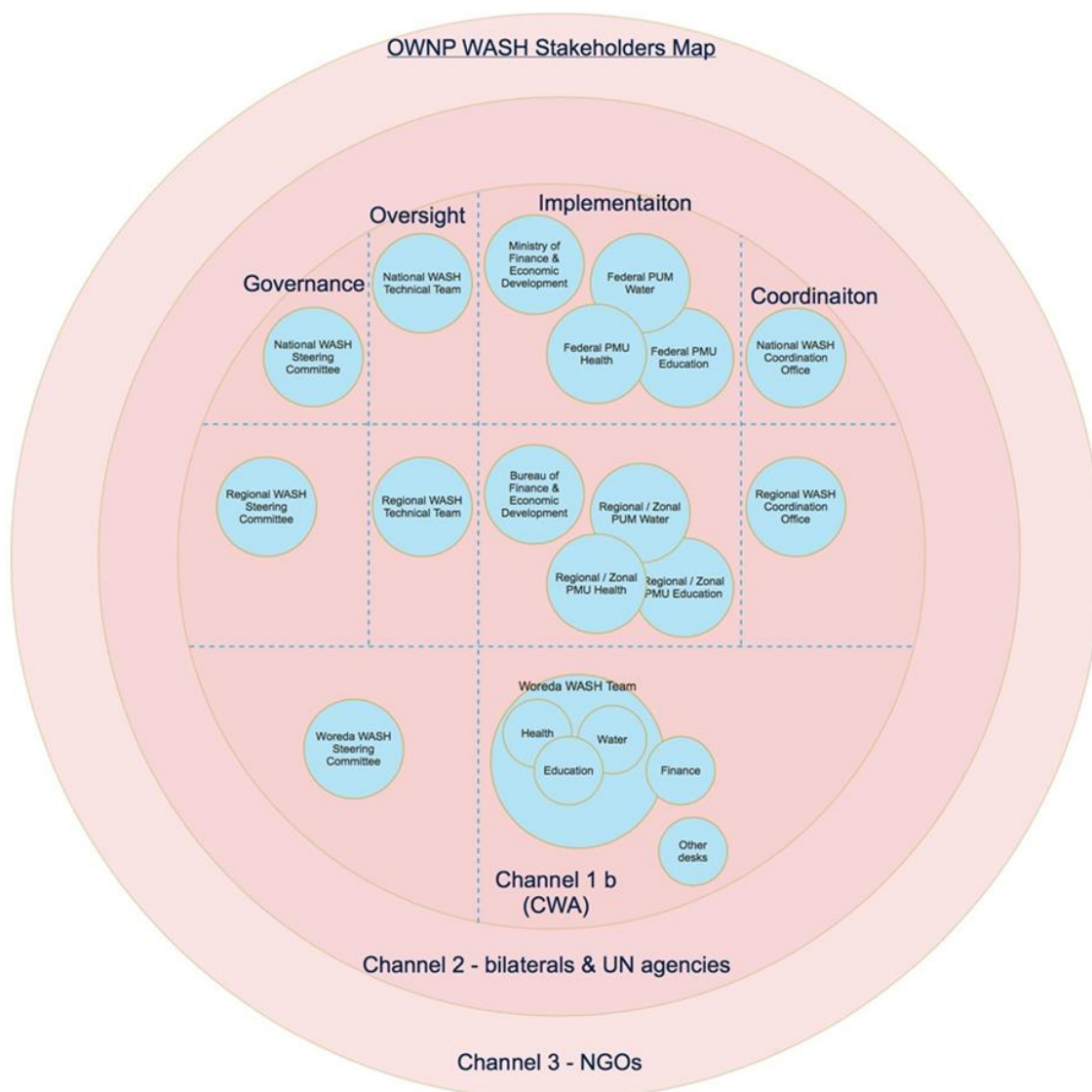
Perhaps the biggest concern is the lack of data on costs and a strong model or budgeting framework to ensure that these activities are appropriately resourced. However, linking monitoring to performance monitoring as in the health sector would offer a method of gradually improving the process in place without being able to define all elements in advance.

6 Task 3: Dissemination and Use of M&E Reports

6.1 Stakeholder Analysis of OWP

For governance, oversight, implementation and coordination the OWP uses existing functions in the ministries and at the different administrative levels. OWP creates the platforms and institutions to bring the different ministries together in steering committees, technical teams, management units and coordination offices. Through these institutions the integration of water supply, sanitation and hygiene is accomplished. The aspiration of the OWP is to achieve greater impact through integration of water, sanitation and hygiene between ministries than could be accomplished through the individual line ministries. Cooperation and sharing resources are prerequisites to achieve this. Channel 2 funding concerns the discrete funding of bilateral agencies documented through Programme Implementation Agreements with the regions. Channel 3 funding captures the funding by NGOs (Figure 6).

Figure 6: OWP WaSH Stakeholder map



Source: IRC (compiled using the information gathered)

6.2 WaSH reporting

Planning, budgeting and reporting of WaSH are currently highly fragmented. Our review indicates that the WaSH reporting landscape can be categorised into three broad areas, each linked to the main financing channels;

- 1) Sector ministry reporting and reporting of special purpose grants
- 2) Project reporting where funds are channelled by bilaterals and UN agencies to regions
- 3) NGO project reporting

Table 5: WaSH Reporting flows

Channel 1 Funding	Channel 2 Funding	Channel 3 Funding
<p>Channel 1a: <i>MoWIE</i></p> <p>Paper-based reporting (quarterly/annual) from <i>woreda</i>-zone-region-federal levels with IT systems under development.</p> <p>Strong focus on reporting outputs (water points) and estimation of incremental coverage (reporting access through new build) with occasional inventory of assets (NWI).</p> <p>Planning directorate focused on reporting government core programme (and overall achievements reported to Parliament) while Water Supply and Sanitation Directorate reporting on a range of programmes and leading efforts to report at multiple scales (including OWNP).</p>	<p>UN agencies:</p> <p>(UNICEF, WHO etc) report on a project basis, produce consolidated agency reports, and monitor against the UNDAF (UN Development Assistance Framework)</p> <p>Results framework (aligned to the GTP and with health, nutrition and water, sanitation and hygiene as one element).</p>	<p>NGOs report against agreements with government at either <i>woreda</i>, regional (to BoFED) or national (to MoFED) level.</p>
<p><i>MoH</i></p> <p>Hygiene and Environmental Health Programme Monitoring system and Health MIS.</p> <p>HMIS embedded in each health facility and <i>woreda</i> across Ethiopia and provides regular and reliable information (quarterly) from rural communities, health facilities and hospitals to <i>woreda</i>, regional and federal government.</p> <p>Information used for directly responding to health emergencies as well as to inform annual planning.</p> <p>Difficult to report WaSH to NWCO because this component is not reported separately by regions for the annual health report.</p>	<p>Bilateral: projects such as COWaSH and WaS-RoPs typically make considerable investments in M&E through their project management units</p>	<p>CCRDA-WSF collects data from NGOs and produces a consolidated national report on NGO contributions.</p>

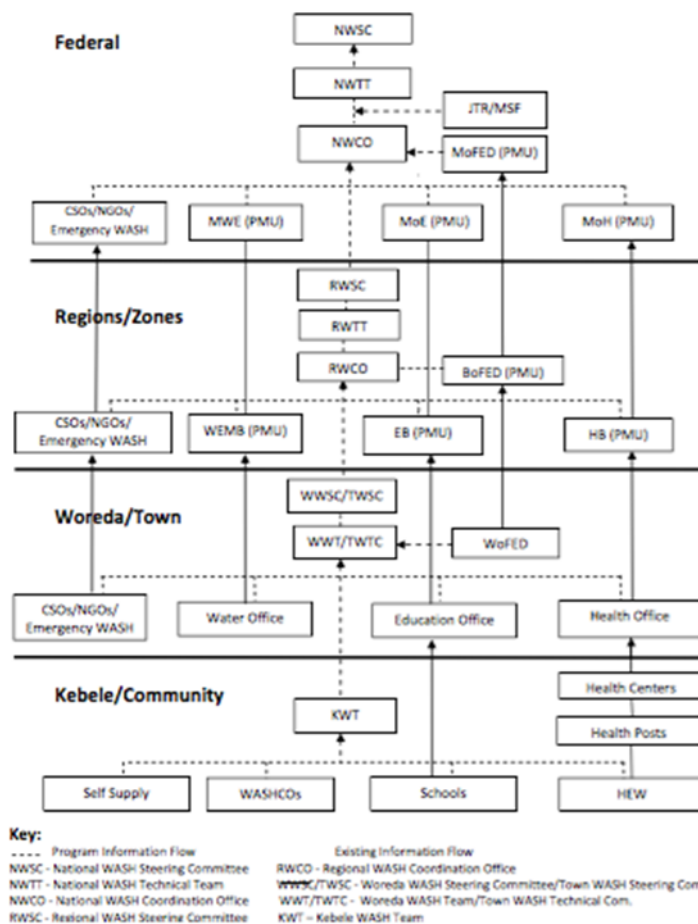
<p><i>MoE</i></p> <p>Data reported annually at each school using paper questionnaire and fed into Education MIS</p> <p>Regional reports are aggregated to prepare annual reports but WaSH component is not very well documented and reported.</p>	<p>Development Associations</p>	
<p><i>MOFED</i></p> <p>IBEX system tracks government expenditure but financial reporting is only focused on the CWA.</p>		
<p>Channel 1b: Special purpose grants</p> <p>Reporting as per the program requirement. Since these programs are multi sectoral interventions it can be difficult to identify WaSH interventions.</p>		
<p><i>CWA</i></p> <p>Makes use of government processes with additional oversight by the World Bank.</p> <p>Productive Safety Net Program</p> <p>Protection Basic Services Program</p> <p>MDG fund</p> <p>Pastoralist Community Development Project</p>		

While there are many examples, and initiatives related to project monitoring, there is less experience of comprehensive programme-based monitoring. Experiences from the IDA/DFID and AfDB funded Water Supply and Sanitation programme were not fully successful in terms of comprehensive WaSH monitoring. There have also been efforts to initiative multi-sectoral and multi-programme reporting, but these have not been sustained. As part of our plan to undertake further data collection we will follow-up with UNICEF to gather information related to their communication strategy.

6.3 OWNP reporting

Figure 4 shows the proposed reporting flows for the OWNP. It shows the reporting for OWNP of the three ministries and how data from the different implementing partners should flow towards the units that are responsible for integration towards one WaSH report. It shows in particular how important cooperation between the MIS systems of each of the different sectors will be in establishing the OWNP M&E reports.

Figure 7: OWP Reporting



Source: OWP Programme Documents

6.4 Reporting linked to planning

Figure 1, Section 3.1 also illustrates our understanding of the current planning and reporting flows with a focus in this case on channel 1 fund flows including the block grant, for example the regular government planning and reporting system for all sectors. Planning is informed by the targets as set in the UAP and in the GTP. The OWP intends to follow the same logic of planning and reporting. Only in the case of the OWP, integration at each level between MoWIE, MoH and MoE is shaped in technical, steering, management and coordination units to address the four functions of the OWP: governance, implementation, oversight and coordination.



Task 2

Task 2: Impact Evaluation

Executive Summary

Purpose of the diagnostic review

This diagnostic review is for Task 2 only and constitutes the second part of the Diagnostic Review Report. The diagnostic review has highlighted gaps in current data collection where existing data sources are inadequate to populate DFID and GoE performance frameworks. It is intended to be a snapshot of the current programme environment from an evaluation perspective and has intentionally not made any recommendations on either the evaluation design or on improving indicators at this stage. The approach to filling these gaps will be set forth in the Inception Report for Task 2, through a detailed evaluation design along with recommended indicators. The primary objectives of the impact evaluation are to determine the efficiency, effectiveness and sustainability of the OWNP and to gather representative data at timely intervals to demonstrate progress during the programme period. The impact evaluation will also provide an independent cross-check on data generated through the proposed Task 1 MIS and other WaSH sector data sources. [Refer to Section 7, 8 for background and methodology of the diagnostic review for Task 2.]

Primary data required

Most parts of the OWNP programme are evaluable but the data requirements do not always conform to existing data sources. In particular, primary and secondary source data collected does not always meet with the definitions, timings, or disaggregation required by DFID and GoE performance management frameworks. This will require the evaluation team to gather primary data to fill in gaps. [Refer to Sections 9.1.1, 10.1.4 and 10.1.5 for a discussion of this point. For an evaluability assessment of the current data with respect to the impact evaluation goals defined in the terms of reference, refer to Tables 6-12.]

Measurement of attribution dependent on data

The design of the OWNP means it may not be possible to fully or accurately measure attribution. It may be possible to measure the additionality of the OWNP in certain areas using a quasi-experimental approach using control groups, but this is dependent on the timing and staged roll-out of the OWNP, as well as the similarity of comparison areas and the timely receipt of information. That is, using an experimental or quasi-experimental approach depends on specific data from NWCO on the stages in which the OWNP will be rolled-out across kebeles and woredas. While preparing the detailed evaluation design in the Inception Report, the availability of such staged roll-out data will be further investigated to determine if attribution can be established using control groups. If this data is not available to the required standard, alternative evaluation approaches will need to be considered. For example, attribution of DFIDE to the CWA results may be estimated by conducting contribution analysis of the OWNP in specific geographic areas to determine the contribution of the OWNP and DFIDE funding to results achieved. [Refer to Sections 9.1.4 and 10.1.2 for discussion of this point.]

Qualitative assessment needed for areas with weak evidence

Existing data sources and planned studies are heavily quantitative and will not be able to explain failures in theory or implementation, particularly at the output to outcome level, where several linkages have been identified as having weak evidence. Weakly evidenced links include if awareness raising leads to behaviour change, if availability of affordable technologies leads to private uptake, and if government and private sector capacity building leads to increased absorptive capacity and sustainability. The impact evaluation team can provide robust qualitative assessment of areas of interest, including through a process review. [Refer to Section 9.1.7, Section 9.2, Table 11 and Section 10 for discussion of this point.]

Evaluation with representative community surveys

The design of the impact evaluation will be finalized during the inception phase. It will include nationally and regionally representative household surveys in both urban and rural areas, as well as gathering locally held administrative data from schools and health clinics. The impact evaluation will also include stakeholder interviews with WaSH, school, and health centre officials. Although the impact evaluation will not target these surveys at

households benefitting from certain categories of non-CWA funding - including implementation activities by non-CWA donors, NGOs, and private sector partners - a selection of these stakeholders can be interviewed to determine the wider effects of OWNP funding. For the purpose of conducting nationally and regionally representative surveys, it will be difficult to obtain access to statistically reliable and timely data from the wide variety of projects in the WaSH sector funded by NGOs, non-CWA donors and those projects involving private sector partners. [Refer to Section 10.1.5 for discussion of this point.]

7 Background

This diagnostic review is for Task 2 only and constitutes the second part of the Diagnostic Review Report. The Terms of Reference (ToR) for the OOWNP WaSH M&E support and impact evaluation specify that the provider will undertake an evaluability assessment of the OOWNP. The ToR states that the evaluability assessment should, at a minimum, be able to answer whether it would be possible to:

- i. Measure the intended as well as unintended outcomes and impacts of the OOWNP.
- ii. Measure the relative contributions of major programme interventions/components to the overall change in the WaSH status;
- iii. Assess the cost drivers and the value for money of the OOWNP (overall and by component), and test the validity of the assumptions about costs and benefits at the initiation of the programme.
- iv. Calculate how much of the overall change in the WaSH status between 2014/15 and 2017/18 could be attributed to the OOWNP, and of which how much could be attributable to DFIDE's support.
- v. Measure the impact of the OOWNP on equity, empowerment, accountability and transparency, particularly for underserved populations.
- vi. Assess the sustainability of the OOWNP.
- vii. Differentiate between the theory failure and implementation failure.

DFID had clarified that there was no set format for the evaluability assessment but it should contain a brief section setting out the recommended approach to the OOWNP evaluation taking into account the limitations and constraints assessed. This high level approach should then be fleshed out in a detailed evaluation strategy in the subsequent inception report.

The structure of the diagnostic review report for Task 2 answers each of the seven questions posed above in the ToR. The conclusion summarizes these findings and sets out a recommended high level approach to the OOWNP evaluation.

The diagnostic review for Task 2 highlights gaps in current data collection where existing data sources are inadequate to populate DFID and GoE performance frameworks. The approach to filling these gaps will be set forth in the inception report.

The purpose of the impact evaluation will be to gather representative data at timely intervals to demonstrate progress during the programme period including at baseline, midline and endline as well as to facilitate the annual DFID programme review process. The impact evaluation will also provide an independent cross-check on data generated through the proposed MIS in Task 1 and other WaSH sector sources through the OOWNP timeframe.

8 Methodology

The evaluability assessment considered the indicators and targets set out in the DFID OneWaSH Theory of Change (ToC) and logframe, to determine whether there were clear objectives for carrying out activities and whether the M&E systems in place collected adequately robust data to support an evaluation.

We conducted a mapping exercise to determine what data was needed for the evaluation, what data is currently being collected in Ethiopia which may be relevant to the programme, and the extent to which the data currently collected was fit for purpose.

With regards to existing secondary data, we assessed the quality of existing data as “existing data is highly relevant and reliable” “existing data is sufficiently relevant and reliable”, and “existing data is not sufficiently relevant and/or reliable”. We also assessed the coherence and clarity of the indicators and targets set out in the OOWNP logframe and the DFID ToC, using a similar assessment scale: “target highly defined and measurable”, “target sufficiently defined and measurable”, and “target not sufficiently defined and/or measurable”.

This exercise was used to identify gaps in data collection in order to answer the questions posed in the evaluation Terms of Reference as well as lay the groundwork for the evaluation design.

The team reviewed several programme management documents used to monitor progress of the OOWNP. These included:

- The DFID OOWNP theory of change and logframe
- The OOWNP Programme Document Key Performance Indicators (Table 8-1, p.68), as well as the customized planning model indicators in Annex 8
- The OOWNP Program Operational Manual for the Consolidated WaSH Accounts performance indicators (Table 9-1, pp. 98-120)
- The Growth Transformation Plan II relevant draft indicators for the Water, Irrigation, and Energy sector
- The UNICEF OOWNP Intervention Tracking Report
- OneWaSH National M&E Framework and Manual
- Ethiopia Country Statement of Commitments for Sanitation and Water for All

Team members were also present for the launch of the OOWNP CWA in Adama, where representatives from the ministries, donors, and implementing partners gave presentations.

In addition, the team contacted representatives from the key stakeholder groups in Annex 2.

Follow-up discussions have ensured that the team is abreast of all relevant existing secondary datasets, and have a clear understanding of the monitoring data being gathered by the GoE. They also provided the team with a clear understanding of DFID's understanding of the ToC and logframe, to ensure correct interpretation of these documents.

9 Task 2: Impact Evaluation

9.1 Evaluability Assessment: Key findings

These findings address whether it is possible for the OWNPN to address different areas of interest to the client. The response outlines what data is currently collected by the programme, as well as any limitations of the current data. The evaluation team will propose ways in which gaps identified below can be filled by Task 1 and Task 2 activities in the inception report. It is important to note that due to resource constraints the evaluation team may not be able to collect all proposed data to all levels of disaggregation.

Given the extent of the proposed changes to indicators, and the number of comments requesting input, the evaluation team will produce a revised draft theory of change, DFID log frame, and programme performance framework for the inception report.

9.1.1 Whether it is possible to measure the intended as well as unintended outcomes and impacts of the OWNPN

There are a number of performance frameworks associated with the OWNPN, both from DFID and the GoE. Our review has determined that while the GoE documentation does not set out a theory of change as such, it is closely aligned to the DFID programme ToC, although the DFID ToC and log frame identify a series of longer term outcomes and impacts of the programme.

There is no definitive list of outcome and impact indicators from the GoE's perspective. There are at least two sets of key performance indicators from the GoE perspective. A list of 17 Key Performance Indicators set out in table 8-1 of the OWNPN Programme Document, with an expanded list of about 150 constituent indicators in Annex 8. There is also a set of 15 Key WaSH Performance Indicators set out in the WaSH M&E manual and framework v1.0. There is some correspondence between these sets of indicators as well as those outlined in the DFID log frame but it is clear from the documentation that it is the responsibility of the GoE to collect data on and report on these indicators. Therefore for this section we have chosen to review the indicators included in the DFID log frame.

A range of secondary data is available which relates to the key anticipated outcomes and impacts of the OWNPN, as identified in the DFID ToC and log frame. However, these datasets are updated at differing intervals and do not always measure key indicators in a timely or consistent way with the OWNPN. For these reasons, the evaluation will collect data through a quantitative household and community survey, to establish consistent, nationally representative data on each outcome of interest at baseline, midline and endline. This primary data will be triangulated with secondary data to the extent possible, to present a robust assessment of each indicator.

The scope of the DFID log frame may change after review. In the comments on the DFID log frame, several changes have been proposed to the DFID outcome indicators. Specifically, it is proposed that the GoE indicator on access to drinking water be removed, and the indicator on access to basic latrine facilities be revisited. Based on these proposed changes, the current outcome indicators include the DFID standard indicators of the number of additional people with sustainable access to improved water supply and improved sanitation facility through DFID support. They also include the proportion of people using improved sanitation facilities.

It may not be possible to measure the DFID standard indicators according to the methodology outlined in the guidance notes. Specifically, the DFID standard indicator on clean water relies on the timely completion of the RWS and UWS Construction Completion reports to determine which areas are newly served. Secondary data is representative only at the national and regional levels and existing survey instruments do not ask individuals whether they have recently acquired an improved facility. The DFID standard indicator on sanitation facilities does not have a primary government data source

The DFID log frame and government performance frameworks have not directly identified unintended outcomes and so no data is currently collected against these outcomes. The World Bank, which is involved in evaluating the MoH sanitation programme, has identified one such outcome of the OneWaSH programme. Ethiopia has one of the highest rates of open defecation in the world, but many of those practicing open defecation do so some distance from the communities, thereby distancing the source of contamination. The government's drive to build basic latrine facilities within the community is geared at changing peoples' behaviour so that more people start practicing fixed point defecation. However, unimproved sanitation facilities within communities also bring the source of contamination within the community, increasing the short-term risk of communicable diseases. The assumption is

that communities will improve their sanitation facilities or else go back to practicing open defecation before too much harm is caused by basic fixed point defecation facilities. This can be measured by existing data sources.

Table 6: Measuring outcomes and impacts of OWNP

Intended Impact and Outcomes	Is the target clearly defined and measurable?	Are M&E systems in place to collect data needed to assess this target at present?
<p>Impact: Under 5 mortality rate per 1,000 live births</p>	<p>Target clearly defined and measurable.</p> <p>Although this indicator isn't disaggregated for gender, or across sub-groups of interest such as marginalized groups or underserved populations, it is clearly defined and measurable.</p>	<p>Quality secondary data is available but timing does not match with DFID annual review cycle or proposed endline dates.</p> <p>It is possible to measure this indicator through the DHS survey, which is representative at national and regional levels and disaggregatable by rural and urban, gender, age, ethnicity, and other variables.</p> <p>The DHS takes place every 5 years. The next DHS is scheduled for 2016/17. This is after programme implementation is scheduled to start. DFID has therefore proposed funding a mini-DHS to collect baseline data in 2014/15 before implementation begins. The 2016/17 DHS could serve as a source of midline data.</p> <p>There is no existing data source for endline data at or around Oct 2018. The 2021/22 DHS will capture impact level data but this will be too late for the DFID review cycle.</p>
<p>Impact: Prevalence of diarrheal disease in U5</p>	<p>Target clearly defined and measurable.</p> <p>Although this indicator isn't disaggregated for gender, or across sub-groups of interest such as marginalized groups or underserved populations, it is clearly defined and measurable.</p>	<p>Quality secondary data is available but timing does not match with DFID annual review cycle or proposed endline dates.</p> <p>It is possible to measure this indicator through the DHS survey (see comments on DHS above).</p>
<p>Outcome 1a: Number of people with sustainable access to improved water supply through DFID support (cumulative)</p>	<p>Target not sufficiently defined and/or measurable.</p> <p>The language of this indicator differs from the DFID standard indicator wording.</p> <p>The definition supplied by the Indicator Methodology Note for access to clean water is the 'number of water points built or rehabilitated' multiplied by the 'average number of beneficiaries per water point'.</p> <p>The Note further specifies that 'only individuals who have gained access to clean drinking water sources which they did not previously have' should be counted.</p> <p>The Note mentions that 'improved' water sources are those which protect the water source from outside contamination.</p> <p>The Note mentions that sustainability is</p>	<p>Sufficient primary and secondary data is not available.</p> <p>The National WaSH Inventory measured the number of water points built or rehabilitated but this was a one-off exercise.</p> <p>There currently is no mechanism to collect updated information on new and rehabilitated water points on a regular basis.</p> <p>The OWNP PM provides service norms for rural water supplies (Table 6.2, p. 49) but it is unclear whether these figures are accurate across all rural areas.</p> <p>No data source currently measures sustainability of water supply points on a large scale.</p>

	challenging to verify but that sustainability should be considered within project design and monitoring.	
<p>Outcome 2a: Number of additional people with sustainable access to an improved sanitation facility through DFID support (DFID standard indicator)</p>	<p>Target not sufficiently defined and/or measurable.</p> <p>This is a DFID standard indicator so its wording will not change.</p> <p>The definition supplied by the Indicator Methodology Note is the 'number of sanitation facilities constructed' multiplied by the 'average number of beneficiaries per sanitation facility'.</p> <p>The Note further specifies that 'only individuals who have gained access to sanitation which they did not previously have' should be counted.</p> <p>The Note mentions that 'improved' sanitation facilities may not necessarily conform to the JMP definition but contribute towards eliminating open defecation.</p> <p>The Note mentions that sustainability is challenging to verify but that sustainability should be considered within project design and monitoring.</p>	<p>Sufficient primary and secondary data is not available.</p> <p>The OneWaSH national M&E Framework does not track access to sanitation facilities in its key performance indicators. Alternative proxy indicators will need to be proposed in the revised log frame as part of the Inception Report.</p> <p>The WMS, ESS and ERSS, track toilet access by type but do not measure whether respondents have gained access to sanitation which they did not previously have. The next WMS will be conducted from July 2015 to June 2016, with data available Dec 16. The next ERSS will be conducted Jan-Feb 2016 with data available August 2016. This data may be suitable for baseline but the sample will not be designed to take account of the staged roll-out of the OWNPN and therefore cannot be used to measure attribution of the OWNPN. Both of these surveys may collect data too early to serve as a midline.</p> <p>The census tracks toilet type within households and may not represent access to community sanitation facilities. The definition is therefore not aligned with the Outcome 2a indicator.</p> <p>It is unclear when the subsequent WMS, ESS and ERSS will be conducted, and past administrations have shown irregular patterns in administration. It should not be assumed that these data sources will be able to provide timely data for programme baseline, midline or endline.</p> <p>None of these surveys provide any measure of sustainability.</p>
<p>Outcome 2b: Proportion of people with access to basic latrine facilities</p>	<p>Target not sufficiently defined and/or measurable.</p> <p>The logic of this indicator is unclear. The DFID ToC refers to the proportion of people with access to improved sanitation facilities, but this is measured by the indicator above.</p> <p>The comments on the log frame propose that DFID revisit this indicator considering the context of sanitation in Ethiopia and what the programme hopes to demonstrate.</p>	<p>To be determined.</p>
<p>Outcome 2c: Proportion of</p>	<p>Target sufficiently defined and measurable.</p> <p>This indicator complements data gathered on</p>	<p>Quality secondary data is available but timing does not match with DFID annual review cycle or</p>

people using improved sanitation facilities	access to improved sanitation facilities, an MDG target that Ethiopia fell short on. It is recommended that this indicator be modified to the 'proportion of people using sanitation facilities, by type of sanitation facility: Basic, improved, and those practicing open defecation (i.e. using no facility)'.	proposed endline dates. The DHS collects data about use of sanitation facilities by type of facility, including open defecation. This data is available every five years, representative at the national and regional levels, and disaggregatable by rural and urban, gender, age, ethnicity, and other variables. The timing of the DHS does not match with the DFID annual review cycle or proposed endline dates. See comments on Impact: U5 mortality for more details.
Unintended impacts and outcomes	Is the target clearly defined and measurable? The DFID log frame and government performance frameworks have not identified unintended outcomes.	To be determined.

9.1.2 Whether it is possible to measure the relative contributions of major programme interventions/components to the overall change in the WaSH status

We understand the OOWNP interventions/components to include the four components of urban WaSH, rural WaSH, institutional WaSH, and programme management and capacity building mentioned in the OOWNP Programme Document. It is possible to disaggregate the contributions of urban, rural, and institutional WaSH components. Contribution analysis is required to demonstrate the contribution of the programme management component.

If the OOWNP is treated as including all programme interventions in the country, then at outcome level, it is possible to disaggregate overall change in access to improved water and improved sanitation facilities by geography of rural versus urban using DHS survey data, cross-checked with data generated by the WMS and the ERSS/ESS. However, disaggregated secondary data is not available to fully and consistently assess all key activities for each component of OOWNP. For this reason, we will collect quantitative and qualitative data from households and communities as well as a range of key institutional stakeholders, to assess the results achieved by each component.

Review of the OOWNP KPI framework and discussions with MoE and MoH officials during a visit to Ethiopia in April 2015 suggest that the Education MIS and Health MIS propose to collect data on 'improved water supply' and 'improved sanitation facility' in schools and health facilities. However the definitions used are not compatible with those used for DFID outcome indicators as they define 'improvement' as a ratio of students to taps. These definitions will be reviewed and confirmed in the inception report.

There is currently no measure of the programme management and capacity building component to the overall change in WaSH status.

Table 7: Measuring relative contributions of OOWNP components

Measuring relative contributions of the programme components	Is the target clearly defined and measurable?	Are M&E systems in place to collect data needed to assess this target at present?
Component 1 – Rural and Pastoral WaSH	Target well defined and measurable. As this component is defined geographically, it is clear what activities fall under this component as compared to component 2. As this component is focused on building	High quality secondary data available, but timing does not match with DFID programme review cycle At outcome level, it is possible to disaggregate overall change in

	<p>and maintaining community infrastructure, as opposed to infrastructure in schools or health clinics, it is also clear which activities fall under this component as compared to component 3.</p>	<p>access to improved water and improved sanitation facilities by geography of rural versus urban using DHS survey data, cross-checked with data generated by the WMS and the ERSS/ESS. However, these data sources will not necessarily be available to align with the evaluation reporting cycle.</p>
Component 2 – Urban WaSH	<p>Target well defined and measurable.</p> <p>As this component is defined geographically, it is clear what activities fall under this component as compared to component 1.</p> <p>As this component is focused on building and maintaining community infrastructure, as opposed to infrastructure in schools or health clinics, it is also clear which activities fall under this component as compared to component 3.</p>	<p>High quality secondary data available, but timing does not match with DFID programme review cycle.</p> <p>At outcome level, it is possible to disaggregate overall change in access to improved water and improved sanitation facilities by geography of rural versus urban using DHS survey data, cross-checked with data generated by the WMS and the ERSS/ESS. However, these data sources will not necessarily be available to align with the evaluation reporting cycle.</p>
Component 3 – Institutional WaSH	<p>Target highly defined and measurable.</p> <p>As this component is focused on building and maintaining infrastructure in schools or health clinics, as opposed to community infrastructure, it is clear which activities fall under this component as compared to components 1 or 2.</p>	<p>Sufficient quality secondary data available, but timing does not match DFID programme review cycle.</p> <p>The Education MIS and Health MIS propose to collect data on ‘improved water supply’ and ‘improved sanitation facility’ in schools and health facilities. However the definitions used are not compatible with those used for DFID outcome indicators as they define improvement as a ratio of students to taps. A conversation with a MoE official has confirmed that the new Education MIS will collect data on the type of water supply. It is not confirmed whether a new Health MIS will do the same.</p>
Component 4 – Programme Management and Capacity Building	<p>Target not geographically defined and measurable.</p> <p>As this is the only component focused on building capacity of WaSH organisations and implementing partners, it is clear which activities fall under this component as compared to components 1, 2 or 3.</p>	<p>Insufficient secondary data available.</p> <p>There is currently no measure of the programme management component to the overall change in WaSH status.</p>

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9.1.3 Assess the cost drivers and the value for money of the OWNP (overall and by component), and test the validity of the assumptions about costs and benefits at the initiation of the programme.

Value for money (VfM) is currently not measured systematically or consistently in the OWNP, and previous reporting by OPM has highlighted difficulties in performing this analysis because of the unavailability of financial data. The DFID Theory of Change mentions affordable technologies but the revised log frame has no indicators specifically geared towards value for money. The GoE CWA performance framework has an outcome area around efficient use of resources, as well as an outcome indicator around TWUs recovering full costs. The OWNP coordination office has mentioned its interest in understanding why Ethiopia has a high unit cost for delivery relative to other countries.

We can conduct a more comprehensive assessment of value for money framed by the '4E's approach, through which we will assess the economy, efficiency, effectiveness and equity of the OWNP. We can ask a number of evaluation questions for each of the 4Es ranging from broad questions relating to policy formation and programme design through to procurement of specific services and equipment, in order to provide a more comprehensive picture of VfM at the programme and component levels. We have presented a number of potential questions we could use to assess each of the 4Es in the following tables. These questions are followed by the data or indicators that would be required to measure the value for money, the source of the data required and whether it is currently available to us. The tables will provide an overview of the extent to which the value for money of the programme is evaluative with the information available to us. A more focused approach to assessing value for money will be developed and presented in the Inception Report.

It is worth noting that the extent to which we will be able to assess value for money at a sub-national level and by component will depend upon the degree to which the programme budget information is disaggregated by geography, component, and type of spend. This data will be supplied by the GoE including MoFED and its provision is outside the control of the M&E supplier. A WaSH sector VfM study by Oxford Policy Management entitled 'Value for Money and sustainability in WaSH programmes' has noted problems in attempting to conduct VfM analysis. It notes that WaSH 'is financed through trust fund and therefore relies on national reporting systems which have an outlook that is primarily fiduciary. It has been close to impossible to link inputs to outputs, due to the formats of financial reporting, and the low level of output data disaggregation.' Any VfM analysis undertaken by the evaluation team will face the same constraints.

The evaluation team has provided indicative VfM questions as well as proposed sources and perceived availability of the data in the table below. We will review the actual availability of data, including disaggregated financial data, during the inception phase and re-assess what metrics are possible.

Table 8: Measuring VfM: '4 E' - economy, efficiency, effectiveness and equity

Economy: spending less (doing things at the right price)			
Question	Data required (examples)	Sources	Availability
What are the key categories of costs the programme budget has incurred?	Drilling unit cost Hardware costs Programme core staff costs Technical assistance / consultancy costs	OWNP Budget Information	TBC
What are the key cost drivers behind the programme?	Structural cost drivers: e.g. drilling, hardware or machinery, equipment unit costs, costs associated with strategic choices about the design of the OWNP intervention model	Interviews with Programme staff	Evaluation team to provide data on outputs, MoFED to provide data on financial inputs

	Implementation cost drivers: e.g. drilling, hardware or machinery, equipment unit costs, costs associated with the methods by which the programme is delivered	OWNP Budget Information	TBC
Has the programme achieved the best price for the type, scale and quality of inputs required?	Day rates for different types of consultancy	OWNP Budget Information	TBC
	Unit costs e.g. Drilling costs, costs of hand pumps	OWNP Budget Information	TBC
How has the programme achieved the best price?	Assessment of whether the programme management and administration processes that the service provider has put in place achieve the best prices and value for costs budget has incurred	Process Evaluation	Coffey to collect data
Efficiency: spending well (doing this right)			
Question	Data required (examples)	Sources	Availability
How is value for money considered in the overall governance of the programme	Efficiency gains: the gains that are made throughout the life of the intervention as a result of improvements in the ways that resources are managed and used	Process Evaluation	Coffey to collect data
Effectiveness: spending wisely (doing the right things)			
Question	Data required (examples)	Sources	Availability
Which programme components /interventions are showing the most positive impact?	Health benefits: e.g. reduced under 5's mortality rate; reduced prevalence of diarrhoeal disease in under 5's	DHS Household and Community Survey	Yes Coffey to collect data
	Economic benefits: e.g. gains in productive time as a result of time saved in accessing water and sanitation.	Household and Community Survey	Coffey to collect data
	Full capital investment costs and annual running costs	OWNP Budget Information	TBC
	Transaction costs and efficiency gains – as a result of the way in which the programme is implemented and the cost reduction as a result of a more efficient WaSH sector in Ethiopia.	OWNP Budget Information	TBC
How can the programme build on or expand these successes?	Resources that the programme has been able to lever in as a result of its activities as a ratio to DFID's total programme	TBC	TBC

<p>How cost-effective have the means been converted into results?</p> <p>Could the same results be achieved more cost effectively?</p>	<p>Comparisons of indicators with other WaSH Programmes e.g.</p> <p>Cost per person for providing sustainable access to drinking water supply</p> <p>Cost per school of providing latrines</p> <p>Cost per health facility of providing latrines</p>	<p>OWNP Budget Information</p> <p>Compatible information from other programmes</p>	<p>TBC</p>
<p>Which programme components /interventions are showing the most positive impact?</p>	<p>Health benefits: reduced under 5's mortality rate; reduced prevalence of diarrhoeal disease in under 5;s</p>	<p>DHS</p> <p>Household and Community Survey</p>	<p>Yes</p> <p>Coffey to collect data</p>
	<p>Economic benefits – gains in productive time as a result of time saved in accessing water and sanitation.</p>	<p>Household and Community Survey</p>	<p>Coffey to collect data</p>
	<p>Full capital investment costs and annual running costs</p>	<p>OWNP Budget Information</p>	<p>TBC</p>
	<p>Transaction costs and efficiency gains – as a result of the way in which the programme is implemented and the cost reduction as a result of a more efficient WaSH sector in Ethiopia.</p>	<p>OWNP Budget Information</p>	<p>TBC</p>
<p>Equity: Spending fairly (doing things for the right people)</p>			
Question	Data required (examples)	Sources	Availability
<p>To what extent have the benefits of the OOWNP been distributed fairly and benefited marginal and disadvantaged members of the population?</p>	<p>Proportion of people with access to drinking water (using GoE indicator) supply disaggregated by key sub-groups including pastoralists, female headed households</p> <p>Proportion of people with access to an improved sanitation facility (DFID standard indicator) disaggregated by key sub-groups including pastoralists, female headed households</p> <p>Reduction in under 5's mortality per 1,000 live births disaggregated by key subgroups e.g. region, rural / urban, household type</p> <p>Reduction in prevalence of diarrheal disease in under 5's</p>	<p>Household and Community Survey KIIs (health facilities and schools)</p> <p>OWNP Equity Status Reports</p> <p>DHS</p>	<p>Coffey to collect data</p> <p>Coffey to collect data</p> <p>Yes</p> <p>Yes</p>

	disaggregated by key subgroups e.g. region, rural / urban, household type		
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9.1.4 Calculate how much of the overall change in the WaSH status between 2014/15 and 2017/18 could be attributed to the OOWNP, and of which how much could be attributable to DFIDE’s support.

In a clarification meeting with DFID, it was agreed that for the purposes of the evaluation the OOWNP was assumed to cover all WaSH sectoral activities in the country. In reality, WaSH sectoral activities may exist outside of the OOWNP as well as activities outside of the WaSH sector which may contribute to WaSH outcomes. DFID has expressed an interest in attributing change to the OOWNP and to DFIDE support.

The design of the OOWNP means it may not be possible to fully or accurately measure attribution. It may be possible to measure the additionality of the OOWNP in certain areas, but this is dependent on the timing and staged roll-out of the OOWNP, as well as timely data being received by the Task 2 team from the GoE, which are beyond the control of the evaluation team. Attribution by OOWNP and DFIDE can be estimated based on financial contributions, but this method also has its drawbacks. In any case, the Task 2 team can map out the contribution of the OOWNP to the overall change in WaSH status, including mapping out other potential contributors.

Attribution vs. contribution

When evaluating impact, evaluators can try to measure the attribution or ‘additionality’ of an intervention. Additionality means the results that would not have happened without the intervention. If an evaluation can measure additionality, it can attribute specific results to an intervention. Establishing attribution requires control or comparison groups which do not receive the intervention and which are measured at outcome and impact levels using the same indicators as the intervention areas.

Attributing results to the OOWNP

It is only possible to isolate the effect of OOWNP programming from the effects of other programmes if there are appropriate intervention and comparison areas which can demonstrate the additionality of the OOWNP.

A staged roll-out of the OOWNP may provide the right conditions to measure additionality of the OOWNP in certain areas. This approach is a quasi-experimental method as true control areas have not been selected and isolated in order to demonstrate impact. With timely information from the GoE, the evaluation team may be able to design a sample which includes areas that will receive OOWNP programming early on in the programme, as well as areas which are demographically and geographically comparable but which are delayed in receiving OOWNP programming for one or more years. It should be noted that the validity and reliability of this approach is dependent on several factors outside the Evaluation partner’s control, including the timing of the staged roll-out, the comparability of areas which receive immediate and delayed programming, and the timely receipt of accurate information before baseline, midline, and endline samples are designed.

Attribution may be estimated by the financial contribution of each intervention in an area, including both OOWNP and non-OOWNP components, but these estimates may not account for different unit costs per beneficiary for different programmes and implementing partners. This approach to estimation is not recommended for this reason.

Attributing results to DFID Ethiopia support

It is understood that DFID funding is pooled with funding from other donors in the CWA and that DFID funding is not earmarked for specific activities. As such, it is not possible to isolate specific activities for which DFID Ethiopia is solely responsible.

A standard method of measuring attribution in a pooled fund of resources is by multiplying the total numbers of beneficiaries by the proportion of funding donors have provided. The OneWaSH Program Document Table 13-2, p.89, lists DFID’s indicative commitment at \$160M (£106M) of \$807M, or nearly 20% of the total. This calculation can be further refined by disaggregating results by component.

Measuring contribution

Separate to measures or estimates of attribution, it is possible to map the contribution of both the OOWNP and of DFIDE. Contribution assesses the relationship between project activities, and the targeted results, and maps any

other forces or dynamics which may also influence those results. It then provides an estimation of the extent to which project activities have contributed to a given result, weighed against other possible contributing factors. In areas receiving both OOWNP and non-OOWNP interventions, the Task 2 team can map out the interventions and their activities and funding through stakeholder interviews in order to estimate the contribution of OOWNP in these areas. In areas receiving DFIDE funding through the CWA, the Task 2 team can determine whether DFIDE participation has resulted in any enhanced or unique outcomes, including leveraging other donor funds, building capacity and improving M&E systems.

9.1.5 Measure the impact of the OOWNP on equity, empowerment, accountability and transparency, particularly for underserved populations.

In general, equity, empowerment, accountability and transparency are not well defined or measured in either the DFID or the GoE performance frameworks for OOWNP.

Headline figures for the WaSH sector have noted disparities between urban and rural areas, however the OOWNP Social Assessment notes ‘there is a risk that focusing policies and programmes on broad-based understandings of underserved populations and vulnerable groups will lead to overlooking inequalities between individuals within these populations and groups. There is an opportunity for the impact evaluation to collect and analyze data on equality and empowerment to address this data gap.

The National Wash Inventory and MIS systems for OOWNP have been designed to make regional, woreda, and kebele level government offices accountable for money spent and results achieved. However, there are limited indicators that measure accountability and transparency in the DFID log frame and the OOWNP framework.

Equity, Empowerment, Accountability and Transparency: Limited definition and challenges in measurement in performance frameworks

There are limited indicators that measure equity, empowerment, accountability and transparency in the DFID log frame and the OOWNP framework.

The DFID log frame includes an output on gender sensitivity, but this is not clearly defined or measured with indicators. One outcome indicator focuses on adolescent girls, but no other indicators are disaggregated by gender or any other vulnerable population. The GoE performance framework for the OOWNP describes indicators and targets for limited aspects of equity such as gender and geographic equity. These do not extend to other aspects of equity to the elderly and the disabled.

The OOWNP Social Assessment Report identifies a range of vulnerable groups, including “women in general, older people, people living with disabilities and HIV, communities in remote rural areas and in urban slums or informal settlements”. Other social groups identified in the report include widows, children, and pastoralist communities.

Indicators considering empowerment and bottom up accountability are few in number and address only capacity building of WaSH sector actors and inclusion of women in water boards and committees including decision making (as part of the ‘Enabling environment and good governance in WaSH sector’, and the ‘Strengthened capacity of WaSH sector actors for achieving and sustaining results’). However, it is not clear how the measuring the inclusion of women in boards and committees will measure the overall impact of the OOWNP on empowerment, accountability and transparency, particularly for the underserved populations.

Table 9: Measuring impact on underserved populations

Measuring the impact of OOWNP on equity, accountability, empowerment and transparency	Is the target clearly defined and measurable?	Are M&E systems in place to collect data needed to assess this target at present?
DFID log frame indicator		
Output 3: Gender-sensitive Improvements	Target not sufficiently defined and/or measurable.	Insufficient quality data available While it is specified in the DFID log frame that

<p>in Institutional WASH</p> <p>Output Indicator 3.1:</p> <p>Proportion of schools with water supply to latrines</p>	<p>It is not clear how the output indicator language relates to the output of gender sensitivity. As it is written, the start-up milestone should be a proportion of schools with water supply to latrines.</p> <p>While targeting schools and school children, it is not clear whether there is a geographical equity in terms of serving the areas underserved.</p> <p>It is also not clear how the construction of the WaSH facility takes into account women, girl and disabled group preferences- while this is specified in the data required.</p>	<p>the data to assess the indicator will be collected through Education MIS, the source is presently not available for assessment.</p>
<p>Output Indicator 3.2:</p> <p>Proportion(%) of adolescent girls with knowledge and commodities for menstrual hygiene management in the One WaSH PLUS programme area</p>	<p>Target not sufficiently defined and/or measurable.</p> <p>The output indicator text refers to two indicators in one: Proportion of adolescent girls with knowledge of menstrual hygiene management, and proportion of girls with commodities for menstrual hygiene management.</p> <p>For better clarity, it is recommended that the indicator be split into two.</p>	<p>Sufficient quality primary and secondary data is not available.</p> <p>To be able to assess against target, the baseline knowledge of menstrual hygiene management should not be assumed to be 0, and the same may apply for menstrual commodities.</p>
<p>Increased geographical equity (measured in increased projects in drought affected areas)</p>	<p>Target not sufficiently defined and/or measurable.</p> <p>While the data collection sets targets for 'having geographical equity within acceptable limits'. It is not clear what 'acceptable limits' are what re the benchmarks and how they are measured and monitored.</p>	<p>Insufficient quality data available</p> <p>DHS, WMS and ERSS do not collect data on the number of projects that the WaSH programme is implementing</p>
<p>Outcome: Increase in percentage of rural and urban population with access to improved water supply, sanitation and hygiene practices (Annex 8)</p> <p>Indicators include percentage of population with access to improved water and latrine facilities and are disaggregated by urban, rural and pastoralist communities. (table 9-1)</p>	<p>Target not sufficiently defined and/or measurable.</p> <p>In considering equity, and while the indicator specifies the increase in water and specifies the target for the urban, pastoralist, and rural, it doesn't specifies the most marginalised areas and underserved within these.</p> <p>Also, while the target requires data on the prioritization of women, girls and disabled groups, the type of data collected does not specify how this is collected.</p> <p>The data required also specifies rehabilitation of WASH facilities in schools and health facilities. This is disaggregated</p>	<p>There is no secondary data available on the distance in KM or the volume of water.</p> <p>DHS, WMS and ERSS provide data on the distance to the water source in time (time spent in reaching water source or in fetching water). DHS provides data on the location of the nearest water source</p> <p>No data secondary data on how prioritization and focus on marginalized and equity groups is ensured.</p>

	by woreda, town, city, regional and federal. Prioritization of underserved areas to ensure equity is not clear.	
Output: Improved water supply increased in rural, pastoralist and urban areas, and in institutions (Annex 8)	<p>Target not sufficiently defined and/or measurable.</p> <p>In considering equity, the indicator specifies the increase in water but does not specify targets for the urban, pastoralist, and rural, and it doesn't explicitly address how this will address the most marginalised and underserved areas.</p>	<p>Sufficient quality primary and secondary data is not available.</p> <p>DHS, WMS and ERSS provide data on type of water source and the distance to the water source in time (time spent in reaching water source or in fetching water). DHS provides data on the location of the nearest water source</p> <p>No data secondary data on how prioritization and focus on marginalized and equity groups is ensured.</p>
Output: Enabling environment and good governance in the WaSH sector. (Annex 8, Table 9-1)	<p>Target not sufficiently defined and/or measurable.</p> <p>While the indicators and targets specify geographic equity and inclusion of women in the WaSH committees, they are not defined.</p> <p>For example, while the data is aggregated by federal, regional, category 3 town and woreda, the indicator does not specify what geographic equity entails and how prioritization is ensured to serve the underserved.</p>	<p>Sufficient quality primary and secondary data is not available.</p> <p>There is no secondary data on the involvement of equity groups in decision making.</p>
Output: Efficient use of resources	<p>Target sufficiently defined and/or measurable.</p> <p>In terms of geographic equity, the indicator prioritizes water supply to the drought-prone affected areas.</p> <p>Water supply in drought-prone areas prioritized to reduce water delivery by tanker</p>	<p>Sufficient quality primary and secondary data is not available.</p> <p>Not clear whether this can be provided by third party data. DHS provides data on type of water supply, of which tanks, however, data is disaggregated by zones and regions. Other sources (ESS, ERSS, WMS) provide data on types of water including 'Water from kiosks/ retailer' but not clear if this includes from Tanks.</p>
Output 5: Strengthened capacity of WaSH sector actors for achieving and sustaining results (Annex 8)	<p>Target not sufficiently defined and/or measurable.</p> <p>Capacity building, which can lead to empowerment, targets different actors at the different managerial levels. However, while some indicators and targets specify women and children, it is not clear what role they play in achieving and sustaining results. It is not clear how other possible actors are considered to ensure equity.</p>	<p>Not clear whether this can be provided by third party data.</p> <p>Can be available through OWNPN sources.</p>
SO 1.1: Ensure supply of reliable and sustainable clean and safe drinking water -	<p>Target sufficiently defined and/or measurable</p> <p>The target clearly prioritizes the Afar and</p>	<p>Sufficient quality primary and secondary data is not available.</p> <p>While it is not specific to Afar and Somali</p>

<p>Expanded access to potable water on sustainable and sustainable through improved supply service standards</p> <p>Equity-relevant Indicator:</p> <p>Afar and Somali Regions rural potable water supply coverage within 1.5 km service standard (%)</p>	<p>Somali region (considered as marginalized)</p>	<p>Regions specifically, but the DHS data source asks where the water source is located and how long the process of getting water to their home takes. However, this is not measured in KM as specified in the indicator.</p> <p>The ESS and ERSS do not have full coverage of the Afar and Somali regions.</p>
<p>S.O 1.2: Improve liquid sanitary services in participatory and environmental friendly manner</p>	<p>Target not sufficiently defined and/or measurable.</p> <p>It is not clear how ‘participation’ in improving liquid sanitary services is ensured or monitored.</p>	<p>Sufficient quality primary and secondary data is not available.</p> <p>No secondary data available to assess or measure the participatory approach.</p>

Proposed revisions to indicators and evaluation questions measuring equity, empowerment, accountability, and transparency, will be addressed in the inception report.

9.1.6 Assess the sustainability of the OWNP

Sustainability is mentioned in the theory of change and in two outcome indicators in the DFID log frame, access to improved water and access to improved sanitation facilities. The methodology notes mention that sustainability is challenging to verify but that it should be considered within project design and monitoring.

To measure sustainability of the provision of WaSH services and interventions, functionality assessment of the services over time is needed. The WaSH sector has developed two approaches to measuring sustainability. The definition developed by WaterAid and used by DFID in their 2012 sustainability review¹ identifies three dimensions of sustainability: capacity of WaSH sector actors; adequacy of financial revenues to cover operation, maintenance and capital cost; and alignment of agenda for the key actors and policy makers. DFID is also sponsoring a sustainability index through UNICEF in the OneWaSH PLUS project in order to measure the sustainability of its interventions. The evaluation team will review these existing sustainability tools and will incorporate sustainability measures into the OneWaSH DFID log frame and programme performance frameworks where we determine that these are fit for purpose. These revised frameworks will be included in the inception report.

Table 10: Assessing sustainability of the OWNP

Sustainability	Is the target clearly defined and measurable?	Are M&E systems in place to collect data needed to assess this target at present?
DFID log frame indicator		
<p>Outcome Indicator 1a: Number of people with sustainable access to improved water supply through DFID support (cumulative) (It is a DFID standard indicator)</p>	<p>Target not sufficiently defined and/or measurable.</p> <p>Sustainability is not defined in the indicator methodology note and there is no indication of how the lasting benefit of improved water supply to the people should be measured and assessed.</p>	<p>M&E systems are not in place to collect data</p> <p>Existing government and secondary data do not provide any measure of sustainability.</p>

¹ WaterAid (2001). *Sustainability Framework*. London. Cited in / Mujica et al. (March 2015). Improving VFM and sustainability in WaSH programmes (VFM-WaSH). Oxford Policy Management
ONEWASH – MAY 2015

<p>Outcome Indicator 2a:</p> <p>Number of additional people with sustainable access to an improved sanitation facility through DFID support (DFID standard indicator) (Annual achievement)</p>	<p>Target not sufficiently defined and/or measurable.</p> <p>Sustainability is not defined in the indicator methodology note and there is no indication of how the lasting benefit of improved water supply to the people should be measured and assessed.</p>	<p>M&E systems are not in place to collect data</p> <p>Existing government and secondary data do not provide any measure of sustainability.</p>
<p>Parameter 5:</p> <p>Strengthened capacity of WASH sector actors for achieving and sustaining results</p>	<p>Target sufficiently defined and/or measurable.</p> <p>Indicators and targets for this component entail trainings and manuals development. These are targets that are easily assessed and monitored.</p> <p>While there are clear targets for this, some targets do not address or measure the change in capacity which would ensure the sustainability of results.</p>	<p>Insufficient secondary data available.</p> <p>There is no current measure for this component.</p>

9.1.7 Differentiate between theory failure and implementation failure

There is a general alignment between the DFID theory of change and the GoE’s understanding of the OWNPs. However, the DFID ToC and log frame include longer term outcomes and impact to a degree that the GoE performance frameworks do not. A conversation with DFID has clarified that the evaluation should prioritise understanding the linkages between outputs to outcomes over outcomes to impact.

The DFID log frame tracks some indicators of process or implementation failure, including disbursement rates and stakeholder engagement. The GoE performance frameworks mention several key decision making processes, including the composition of WASHCOs, the use of MIS data in the planning process, design of water points and latrines with priorities of women, girls, and disabled groups, and the prioritisation of drought-prone areas. However, for the latter, it is not clear how information about the decision making processes themselves, including equity issues, will be gathered.

In order to differentiate between theory failure and implementation failure, we will use a theory-based evaluation approach to test the DFID theory of change, while also conducting a process evaluation which assesses the implementation of OneWaSH. This two-pronged approach will allow the evaluation to differentiate between theory failure and implementation failure. The DFID ToC has identified those linkages where evidence is currently weak, including if awareness raising leads to behaviour change, if availability of affordable technologies leads to private uptake, and if government and private sector capacity building leads to increased absorptive capacity and sustainability. We will be able to assess different linkages within the DFID ToC, the extent to which the available evidence supports these linkages, and contextualise failures from output to outcome level in light of the process evaluation which will allow us to connect results to implementation.

In order to conduct a robust theory-based evaluation, the evaluation will need a detailed and elaborated programme ToC to test. We have assessed the existing DFID ToC, in terms of whether key outcomes and relationships are sufficiently defined to enable assessment, but note that the ToC has not been updated since the business case, and does not reflect changes in programme design apparent in the revised log frame.

9.2 Assessing the DFID OneWaSH Theory of Change (ToC)

The key activities planned by the GoE under OneWaSH include:

- Component 1 – Rural and Pastoral WaSH: Construction of 55,865 new water points and rehabilitation of 20,010 existing schemes. Self-supply enhancement programme to encourage construction of 42,529 household and community dug wells.
- Component 2 – Urban WaSH: Service improvements, expansion and augmentation of the water supply in cities and towns.
- Component 3 – Institutional WaSH: Support to improve the water supply and sanitation facilities at health institutions and schools.
- Component 4 – Programme Management and Capacity Building: Support to improve and strengthen WaSH organisations and implementing parties at federal, regional, woreda and kebele levels.

These activities are reflected in the key inputs and outputs described in the DFID ToC. However, in the DFID ToC there are additional outcomes and impacts included, which differ to some extent from the outcomes and impact articulated in the GoE documentation. The overarching objective of the programme, as articulated by the GoE is to “contribute to improving the health and well-being in rural and urban areas by increasing water supply and sanitation access and the adoption of good hygiene practices in an equitable and sustainable manner”, by “increased coverage of water supply and sanitation in rural and urban areas in Ethiopia”.

The outcomes and impact mentioned in the DFID ToC and log frame have provided additional areas of emphasis and nuance not present in the GoE documentation. This is particularly important for issues around equity of use, quality of services, geographic differences between rural and urban areas, and outcomes and impacts which specifically affect women or marginalised groups such as people with a disability or pastoralist households.

In order to test DFID’s ToC as part of the evaluation, these assumptions and definitions need to be more clearly articulated, to ensure the evaluation is fully capturing the relevant aspects of each output and outcome, to sufficiently test the programme ToC. Each key outcome is listed in Table 6, along with an assessment of additional elaboration and detailed required for evaluation.

Table 11: Measuring theory and implementation failure

Measuring failures of theory	Additional detail and definitions required to evaluate
Outcome: People access improved water sources	Underlying assumptions about whether this is access to improved or basic water supply, whether it is in a rural or urban area, differentiation between male, female and child users as well as key marginalised groups – such as pastoralists, older users, people living with HIV/AIDS, or people with a disability, definitions of availability (for OWNPs, availability is defined as within 1.5km of homes in rural areas and within 0.5km of homes in urban areas), and clarification about whether the people benefiting are newly served with any kind of water source or whether they are newly served with an improved source, as compared to a basic one. Assumptions about the frequency of environmental disruptions, such as droughts, and the potential for conflicts around access to improved water sources should also be included.
Outcome: People use improved sanitation facilities	Underlying assumptions about the users of these improved sanitation facilities (the percentages of men, women and children, as well as key marginalised groups), the quality and cleanliness of these facilities, whether they are in rural or urban settings, or their affordability are not clear. These assumptions have clear bearing on the anticipated impact resulting from use of improved sanitation facilities (“Reduced diarrhoea and other infection diseases, hence reduction in treatment costs and loss of life”).
Outcome: Household latrines built privately and upgraded	This outcome is related to ‘People use improved sanitation facilities’ and similar clarifications are required.
Outcome: Behavioural change- people end open defecation, use improved hygiene practices, including hand washing at critical	Assumptions around what types of people are changing their behaviour (men, women or children, as well as key marginalised groups), whether these people are living in a rural or urban setting, or what level of behaviour change constitutes success also have implications for the anticipated impact (“Reduced diarrhoea and other infection diseases, hence reduction in treatment costs and loss of life”).

times, and safe water management	
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Although limited secondary data will be available on programme management of OneWaSH, there is currently no measure of the programme management component to the overall change in WaSH status, and it is unclear how the GoE performance framework will measure several key decision making processes. A process evaluation will gather primary data on the implementation and management of OneWaSH which will enable our evaluation team to assess the extent to which the implementation of OneWaSH has enabled or hindered programme success.

We will be able to triangulate these findings with the results from the contribution analysis and theory-based evaluation to assess the extent which any under-achievements in terms of meeting the anticipated outcomes of OneWaSH are results of failures in theory or failures in implementation.

9.3 Assessing the DFID programme log frame

Table 12: Review of DFID log frame

Impact		Comments
Statement	Improved household health and socio-economic status of poor people	No impact indicators directly measure improved socio-economic status of poor people. This may be implied by improving health and reducing mortality.
Outcomes		Comments
Indicator 1a	Number of people (disaggregated by gender) with sustainable access to improved water supply through DFID support (cumulative) (It is a DFID standard indicator)	<p>The language of this indicator differs from the DFID standard indicator wording, which is 'the number of people with sustainable access to clean drinking water through DFID support'. For the inception report, the evaluation team will check with the NWCO on the aspects it wishes to capture regarding drinking water supply and develop a revised indicator for the DFID log frame and OWP results framework.</p> <p>The DFID standard methodology for measuring this indicator is the 'number of water points built or rehabilitated' multiplied by the 'average number of beneficiaries per water point'. The methodology note further specifies that 'only individuals who have gained access to clean drinking water sources which they did not previously have' should be counted, that 'improved' water sources are those which protect the water source from outside contamination and that sustainability is challenging to verify but that sustainability should be considered within project design and monitoring.</p> <p>It should be noted that the methodology of this indicator differs substantially from that used by the GoE to measure access to water supply (OWNP KPI No. 1). The GoE definition currently includes water points within 1.5km of homes within rural areas, and within 0.5km of their homes in urban areas, as well as 15 or 20 litres per capita per day in urban and rural settings. It is understood that these definitions are aligned to the definitions used in the Growth Transformation Plan (GTP) II and that the GTP II definition of volume may change. The evaluation team will review this indicator definition in the inception report if there is a change in the GTP II in 2016-17.</p> <p>Due to substantial differences in definition and methodology, it is not expected that the DFID standard indicator and the GoE indicator will produce comparable results. For the inception report, the evaluation team will review definitional differences for drinking water supply and develop a revised indicator for the DFID log frame and OWP results framework.</p>

TASK 2 / DIAGNOSTIC REVIEW REPORT

Indicator 1b	Proportion of people (disaggregated by gender) with access to drinking water supply (GoE indicator defined as an availability of a water source/point within 1.5km of their homes in rural areas, and within 0.5km of their homes in urban areas)	<p>The definition used by the GoE for measuring access is substantially different than the definition and methodology used for the DFID standard indicator.</p> <p>As DFID has asked advice on reducing the number of outcome indicators, it is recommended that this indicator be removed from the log frame, as it is present in the OWNPN log frame and will factor into calculations for the previous indicator.</p>
Indicator 2a	Number of additional people (disaggregated by gender) with sustainable access to an improved sanitation facility through DFID support (DFID standard indicator) (Annual achievement)	<p>This is a DFID standard indicator so its wording will not change. The definition supplied by the Indicator Methodology Note is the ‘number of sanitation facilities constructed’ multiplied by the ‘average number of beneficiaries per sanitation facility’. The Note further specifies that ‘only individuals who have gained access to sanitation which they did not previously have’ should be counted, that ‘improved’ sanitation facilities may not necessarily conform to the JMP definition but contribute towards eliminating open defecation, and that sustainability is challenging to verify but should be considered within project design and monitoring.</p> <p>The GoE indicator on access to improved human excreta removal (OWNPN KPI No. 4) is less well defined. There is no definition of access or of improved human excreta removal. Due to differences in definition and methodology, the DFID standard indicator may produce substantially different results from the GoE indicator.</p>
Indicator 2b	Proportion of people (disaggregated by gender) with access to basic latrine facilities	<p>The logic of this indicator is unclear. The OWNPN CWA has an indicator monitoring population with access to sanitation facilities by communal latrines, public latrines, and latrine sludge / septage treatment plants. It also has an indicator on construction of improved household latrines.</p> <p>DFID should consider the context around sanitation in Ethiopia and what it hopes to demonstrate with this indicator. The MoH and the JMP both recognized that Ethiopia has fallen short of its MDG to ‘halve the proportion of the population without sustainable access to basic sanitation’, although the language is somewhat misleading as in certifying this result, figures for access to improved sanitation facilities were used (Slaymaker and Johnston 2015, Letter confirming JMP estimates for Ethiopia). Achieving ‘national sanitation coverage’ is a goal of the Ethiopian government for both OneWaSH programme and the wider MoH sanitation programme, but a conversation with the World Bank, which is involved in evaluating the MoH sanitation programme, revealed that this approach may have unintended consequences. As the WB has explained, this is the problem: Ethiopia has one of the highest rates of open defecation in the world, but many of those practicing open defecation do so some distance from the communities, thereby distancing the source of contamination. The government’s drive to build basic latrine facilities within the community is geared at changing peoples’ behaviour so that more people start practicing fixed point defecation. However, unimproved sanitation facilities within communities also bring the source of contamination within the community, increasing the short-</p>

TASK 2 / DIAGNOSTIC REVIEW REPORT

		<p>term risk of communicable diseases. The assumption is that communities will improve their sanitation facilities or else go back to practicing open defecation before too much harm is caused by basic fixed point defecation facilities.</p> <p>DFID should consider whether it wants this indicator to reflect progress towards achieving the government's goals of national sanitation coverage (access to basic sanitation facilities), progress towards the 2015 sanitation MDG (access to improved sanitation facilities, which is covered by the previous indicator), or behaviour change (% of population practicing open defecation, which is covered by the subsequent indicator), and refine it accordingly.</p>
Indicator 2c	Proportion of people using improved sanitation facilities	<p>This indicator complements data gathered on access to improved sanitation facilities, which was an MDG target that Ethiopia fell short on. See above analysis on measuring sanitation facilities.</p> <p>It is recommended that this indicator be modified to the 'proportion of people using sanitation facilities, by type of sanitation facility: 'Basic, improved, and those practicing open defecation (i.e. using no facility)'. See comments on Output Indicator 2 below.</p>
Outputs		Comments
Indicator 1.1	Number of water supply schemes constructed and/or rehabilitated attributable to DFID (milestones beyond 2014/15 will be further refined following the completion of the feasibility studies for small towns)	<p>The language of the milestones and the source of this indicator suggest that it applies only to the UNICEF OneWaSH PLUS project. The indicator should be disaggregated by implementation modality, including CWA and OneWaSH PLUS, for better clarity.</p> <p>There does not seem to be any mention of the OWNPN target number of water supply schemes (3,358) anywhere in the OneWaSH PLUS Annual Intervention Tracking Report 2014. The Tracking Report does mention a target of 100,000 people with access to improved water supply, along with 250,000 people with access to improved sanitation. The evaluation team understands from DFID that the feasibility study and design for OneWaSH Plus has now been finalised and that the OneWaSH PLUS programme log frame can now have output and outcome indicators which directly feed into the OneWaSH log frame.</p>
Indicator 1.2	% of rural water schemes functional (<i>note this incorporates governance aspects, climate resilience and environmental sustainability</i>)	<p>See analysis above for indicator 1.1. The indicator should be disaggregated by implementation modality, including CWA and OneWaSH PLUS, for better clarity.</p> <p>There does not seem to be any mention of the OWNPN target of functional rural water schemes (3,358) anywhere in the OneWaSH PLUS Annual Intervention Tracking Report 2014. The evaluation team understands from DFID that the feasibility study and design for OneWaSH Plus has now been finalised and that the OneWaSH PLUS programme log frame can now have output and outcome indicators which directly feed into the OneWaSH log frame.</p>

Indicator 2	Proportion of kebeles reaching ODF status annually	<p>This is an outcome level indicator rather than an output level indicator. As it is written, the milestone should be the proportion of kebeles which have currently achieved ODF status rather than on disbursement of funding. The Ministry of Health already monitors the proportion of kebeles reaching ODF status annually. This indicator is included in the OneWaSH CWA performance framework Table 9-1.</p> <p>It is not clear that this indicator clearly links to the desired output of 'increased knowledge and availability of hygiene and affordable improved sanitation facilities at household level', or that it is the best indication of behaviour change. ODF certification is an all or nothing measure and does not show progress in reducing the practice of ODF which is less than 100%. A better indicator of behaviour change, included in the OWNP programme results frameworks Annex 8, is % of the population practicing open defecation. This figure is similar to that reported in Outcome Indicator 2c.</p> <p>It is recommended that this indicator be removed and merged with Outcome Indicator 2c, as described above. This leaves no output level indicators for Output 2.</p> <p>It is therefore recommended that two new output indicators be drafted. The first should address levels of knowledge and understanding of sanitation, and the second should address levels of knowledge and understanding of hygiene practices, i.e. hand washing. This data should be collected through project activities, i.e. by measuring the level of knowledge and understanding of good sanitation and hygiene practices of beneficiaries before and after awareness-raising activities.</p>
Output Statement 3	Gender-sensitive Improvements in Institutional WaSH	Neither institutional WaSH nor gender sensitivity are mentioned in the original ToC. These are valid inclusions to the DFID log frame but the ToC should be amended to reflect them. The impact evaluation is better suited to tracking these indicators than the proposed WaSH MIS.
Indicator 3.1	Proportion of schools with water supply to latrines	It is not clear how the output indicator language relates to the output of gender sensitivity. As it is written, the start-up milestone should be a proportion of schools with water supply to latrines.
Indicator 3.2	Proportion(%) of adolescent girls with knowledge and commodities for menstrual hygiene management in the OneWaSH PLUS programme area	The output indicator text refers to two indicators in one: Proportion of adolescent girls with knowledge of menstrual hygiene management, and proportion of girls with commodities for menstrual hygiene management. It is recommended that the indicator be split into two. The baseline knowledge of menstrual hygiene management should not be assumed to be 0, and the same may apply for menstrual commodities.
Indicator 4.1	Proportion of OWNP- CWA budget utilized (utilisation rates) as against	This indicator is acceptable and can be used.

TASK 2 / DIAGNOSTIC REVIEW REPORT

	agreed annual budget	
Indicator 4.2	Number of competent private sectors (contractors, consultants, suppliers) in the WaSH sector (milestones for the rest of the project period will be defined following the finalization of the bottle neck analysis under the OneWaSH PLUS project)	The unit of measurement for this indicator is unclear. This indicator is not reflected in the OneWaSH PLUS performance management framework or results. According to the Theory of Change, this indicator should lead to a greater affordability of new technologies, but this is not measured at outcome or impact level.
Output Statement 5	Effective preparatory arrangements and stakeholder engagement established for intended OWNP support.	This output is not reflected in the programme Theory of Change but is valid to include. This output can be measured through the DFID process evaluation.
Indicator 5.1	Proportion of DFID funding disbursed in to the OWNP Consolidated WaSH Account (for Component One)	This indicator is acceptable and can be used.

10 Proposed evaluation approach

At first glance, there appears to be sufficient secondary data to gather evidence against key outcome and impact indicators for both the DFID log frame and the GoE performance frameworks, including by component. However, closer analysis of the data requirements shows that data from secondary sources does not always use definitions, timings, or disaggregation compatible with the needs of the programmes. This requires the impact evaluation team to gather representative primary data to fill in the gaps.

The existing approach to measuring several topics is notably weak. There are few solid indicators around equity, empowerment, transparency and accountability, cost drivers and value for money, and sustainability.

The design and implementation schedule of the OneWaSH programme, as well as the quality of available data from off-budget implementers, may mean that it is not technically feasible to assess attribution of the OWNPN to overall results. It is recommended that the impact evaluation team develop a theory-based evaluation approach including contribution analysis.

Existing data sources and planned studies are heavily quantitative and will not be able to explain failures in theory or implementation, particularly at the output to outcome level, where several linkages have been identified as having weak evidence. These weak evidence links include if awareness raising leads to behaviour change, if availability of affordable technologies leads to private uptake, and if government and private sector capacity building leads to increased absorptive capacity and sustainability. The impact evaluation team can provide robust qualitative assessment of areas of interest, including through a process review.

10.1 Outline of our approach to the Evaluation

10.1.1 Objectives of the Impact Evaluation

The primary objectives of the impact evaluation are to determine the efficiency, effectiveness and sustainability of the OWNPN and to gather representative data at timely intervals – baseline, midline and endline - to demonstrate progress during the programme period.

10.1.2 Attribution and contribution analysis

It is only possible to isolate the effect of OWNPN programming from the effects of other programmes if there are appropriate intervention and comparison areas which can demonstrate the additionality of the OWNPN.

A staged roll-out of the OWNPN may provide the right conditions to measure additionality of the OWNPN in certain areas. This approach is a quasi-experimental method as true control areas have not been selected and isolated in order to demonstrate impact. With timely information from the GoE, the evaluation team may be able to design a sample which includes areas that will receive OWNPN programming early on in the programme, as well as areas which are demographically and geographically comparable but which are delayed in receiving OWNPN programming for one or more years. It should be noted that the validity and reliability of this approach is dependent on several factors outside the evaluation team's control, including the timing of the staged roll-out, the comparability of areas which receive immediate and delayed programming, and the timely receipt of accurate information before baseline, midline, and endline samples are designed.

It is possible to estimate the attribution of DFIDE to CWA results achieved. A standard method of measuring attribution in a pooled fund of resources is by multiplying the total numbers of beneficiaries by the proportion of funding donors have provided. The OWNPN PD provides the indicative commitment of DFID relative to other donors to the CWA as a whole as well as by component.

Separate to measures or estimates of attribution, it is possible to map the contribution of both the OWNPN and of DFIDE. Contribution assesses the relationship between project activities, and the targeted results, and maps any other forces or dynamics which may also influence those results. It then provides an estimation of the extent to which project activities have contributed to a given result, weighed against other possible contributing factors. In areas receiving both OWNPN and non-OWNPN interventions, the Task 2 team can map out the interventions and their activities and funding through stakeholder interviews in order to estimate the contribution of OWNPN in these areas. In areas receiving DFIDE funding through the CWA, the Task 2 team can determine whether DFIDE participation

has resulted in any enhanced or unique outcomes, including leveraging other donor funds, building capacity and improving M&E systems.

10.1.3 Process evaluation

In addition to the theory-based evaluation we will also conduct a process evaluation to answer some important questions that concern, for example, how well the programme is being implemented, to what extent the changes delivered through the programme will be sustainable, and to what extent the component on programme management and capacity building has enhanced the results from the other components. Our process evaluation will also identify learning points and examples of good practise for wider dissemination.

10.1.4 Data sources

Whilst there are a number of secondary data sources that are relevant to the evaluation (e.g. the Demographic Household Survey, the National WaSH Inventory, the Welfare Monitoring Survey) there are a number of factors which mean we will not be able to rely upon using these sources to measure the indicators in the log frame and evaluation framework and to assess the contribution made by the Programme. The factors which restrict the utility of these sources for our purposes include:

- The data was collected for other purposes so the relevance of the data for the OWNP evaluation is limited
- There is a lack of up-to-date data, meaning that baseline data using these secondary sources will not be a true reflection of the situation at the start of the programme.
- We are relying on other parts of the OWNP to provide data which is of sufficient quality to evaluate the results
- We have no guarantee that future rounds of data collection will be undertaken and no control over its timing
- A lot of data is only made available at the regional level meaning that without access to the raw data so we will not be able to disaggregate the data at the sub-regional level. Our previous efforts to access raw data from GoE and CSA to assist with another DFID evaluation have not been successful.

With these limitations in the utility of secondary data we will conduct sufficient primary data collection to enable us to meet the requirements of our evaluation. Where relevant secondary data is available to us we will use this to complement our research through triangulate and validation of our own findings but we will not rely upon these sources for our evaluation.

10.1.5 Methodology

Our approach will include both quantitative and qualitative research. Our quantitative research will comprise household and community surveys in rural and pastoral and urban areas. We will use the household and community survey to quantitatively measure changes in the log frame indicators and those in our evaluation framework including, for example, changes in access to drinking water and additional people with access to an improved sanitation facility within the endline of the programme. Our qualitative research will involve semi-structured interviews with school heads and health facility managers to assess the extent to which the programme is delivering against its objectives e.g. in making gender-sensitive improvements to WaSH facilities within the institutions. We will also use the interviews to assess what outcomes these improvements are achieving e.g. whether there has been an increased enrolment of girls at schools or women and girls using the health facilities.

Our research will be conducted at baseline, midterm and endline. Indicative sample for each component of the research has been summarised in the following table.

Table 13: Proposed high level evaluation approach

Please note that numbers given below are indicative. Final sample sizes may change according to the requirements of the impact evaluation. These will be presented in the inception report and agreed with DFID and NWCO.

OWNP Component	Methodology	Informant	Indicative Sample Sizes
1. Rural and Pastoral WaSH	Household and Community Survey	Male and Female Household Members	1,500

TASK 2 / DIAGNOSTIC REVIEW REPORT

2. Urban WaSH	Household and Community Survey	Male and Female Household Members	1,500
3. Institutional WaSH	Semi-structured Interviews	School heads	25
		Health facility managers	25
4. Programme management and capacity building	Semi-structured Interviews	Woreda water officials	15
		Regional water officials	10
		National Programme Staff	10

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Annex 2: List of Stakeholders Consulted

Tasks 1, 3

- National WaSH Coordination Office (NWCO)
- Ministry of Water, Irrigation and Energy (including State Minister, Water Supply and Sanitation Directorate staff, and Planning Directorate staff)
- Ministry of Health
- Ministry of Education
- Ministry of Finance and Economic Development (Channel One Programme Coordination Unit)
- African Development Bank
- World Bank
- Water and Sanitation Programme
- UK Department for International Development (DFID)
- UNICEF
- Central Statistical Agency
- COWASH
- WaterAid
- ICRC
- Akvo
- Professionals Unite Together Plc.
- Oxford Policy Management

Task 2

- DFID Ethiopia
- National WaSH Coordination Office (NWCO)
- Ministry of Water, Irrigation and Energy, Women, Youths and Children Affairs Directorate
- Ministry of Education
- Central Statistical Agency
- World Bank
- UNICEF

Annex 3: WaSH M&E Design Principles

Typically, there are big expectations placed on national WaSH sector M&E systems, particularly from governments and development partners. National-scale data collection deploying advances in ICT in some African countries have set the tone: it is now possible to have data from each and every water system in the country. However, few of these systems are currently updated and little of the data collected is used to generate information and knowledge.

The following 20 principles are proposed to guide our work in supporting and strengthening the M&E system for the OWNPN, and could also form a partial basis to help assess the impact of our activities.

1. Monitoring is a means to an end. Monitoring must always have a clear purpose. Many sector professionals are seduced by the fast developments in ICT to build big and all-encompassing data management systems but these are not fully used. Monitoring must be 'fit for purpose'.
2. Monitoring should provide the data that professionals and executives need to take decisions, to plan, to allocate budgets etc. The best and most effective and most sustainable monitoring systems produce data without which sector professionals and executives cannot do their jobs and cannot fulfil their responsibilities.
3. It is important to accept that different monitoring systems are needed and could and should operate in parallel and in interaction. Private operators will need other data than government ministries; development partners need other data than governments; civil society needs other data than development partners. All have their own interests and therefore their own data needs. Sometimes they can use each other's data but most of the time they cannot. The best monitoring environment is where monitoring is done by different stakeholders and where they use data to discuss, challenge and negotiate.
4. Data collection is not only a technical exercise of putting data in a smartphone or on paper. Data collection helps sector professionals to build rapport with communities, get a proper understanding of problems and faults and to create ownership for problem solving. Data collection should as much as possible be done not by enumerators but by local WaSH sector professionals responsible for planning and implementation of WaSH services.
5. Data needs to be filed and stored where data are needed. From local level to national ministries where sector professionals need to take decisions. Accessible data helps sector professionals and executives to see trends and change over time.
6. Trust is needed for well-functioning monitoring and management information systems. Trust in data quality and reliability. Also trust that different users of the same monitoring system do indeed use the data. National ministry staff should not check the functionality of water points, but trust that this will be done by the responsible professionals at local level. For good management information systems, accountability at different levels need to be defined and respected.
7. Sustainable monitoring systems need a range of skills. Skills are not just for data collection, but in particular for data analysis and data reporting. Some of the skills will need to be vested in WaSH sector professionals, but some of these skills need data management specialists.
8. A well-performing monitoring system needs continuous piloting. Technology changes fast, WaSH governance changes fast, data requirements will change fast. Even a well-functioning and sustainable monitoring system will need space for experimentation and testing.
9. Both the management information systems and the sector itself change continuously. A well-performing monitoring system needs continuous training facilities.
10. Buying, using or leasing ICT for monitoring needs business-minded approaches such as good contracts that give the client access to all data and source codes; help desk functions; regular updates and upgrades of ICT; regular assessment of on-going contracts; clear procurement rules etc. Too often ICT services are provided in an aid-driven environment and often this result in false expectations and disappointment.
11. There always is a political element in monitoring and a bias towards the interests of the ones managing the data. That is why parallel monitoring systems serving the interests of different stakeholders is a good thing. Contestation over the truth is a sign of a mature sector in which all stakeholders have a right to speak, respect each other's opinions and dispute each other's data.

12. National statistical offices are crucial for independently measuring impact of WaSH services delivery. Most administrative and provider data systems serve planning and financing purposes; these systems help service providers and authorities deliver proper services. There is a role for statistical offices to independently measure the impact of service delivery and make that data available.
13. The WaSH sector is an integrated sector. However, in most countries there are no WaSH ministries. Most of the time WaSH is spread over different ministries: water, health, education, finance and more. Data collection is therefore also spread over different ministries. WaSH monitoring systems should draw on these systems and consolidate data in a WaSH sector report.
14. Sustainable monitoring systems require incentives to collect and use data, particularly at local levels. For example data collection and using data in annual plans may be a prerequisite for receiving grants from national level.
15. Every monitoring system needs a calendar for activities since the time lines and levels of data collection, of data validation and use are all interconnected and dependent on each other. MIS units are best equipped to enforce such a calendar.
16. Most of the time people, in particular at local level, do not like monitoring. They would rather go out to fix things. Making monitoring attractive is critical. In the first place by making sure that local level professionals have ownership of data. Incentives for repeat data collection will also help.
17. Time and continuous reflection are needed for mature M&E systems. The Government of Uganda took 15 years to build its national sector monitoring system. It started with a very basic monitoring system which then was adapted over time to better reflect the reality; to better serve the data needs and to integrate new technology options e.g. add new targets, define indicators more precisely, improve data collection methods, and performance monitoring to target monitoring etc.
18. Timely reporting and reliability of data quality is more important than size of data systems. Better have few indicators reported timely and with quality than having a great amount of data reported at long intervals and with doubtful quality.
19. Independent research will always be needed on top of monitoring and management information systems. In particular research to investigate why the data show problems. At international level this is what the GLAAS reports add to the JMP data.
20. Monitoring systems reveal problems and constraints. The question is whether governments and other stakeholders are able to act on the problems revealed. Do they have the skills and the resources to correct, repair, rehabilitate, re-train, re-raise awareness etc? If there is no provision for action then monitoring will only frustrate and lose its momentum.

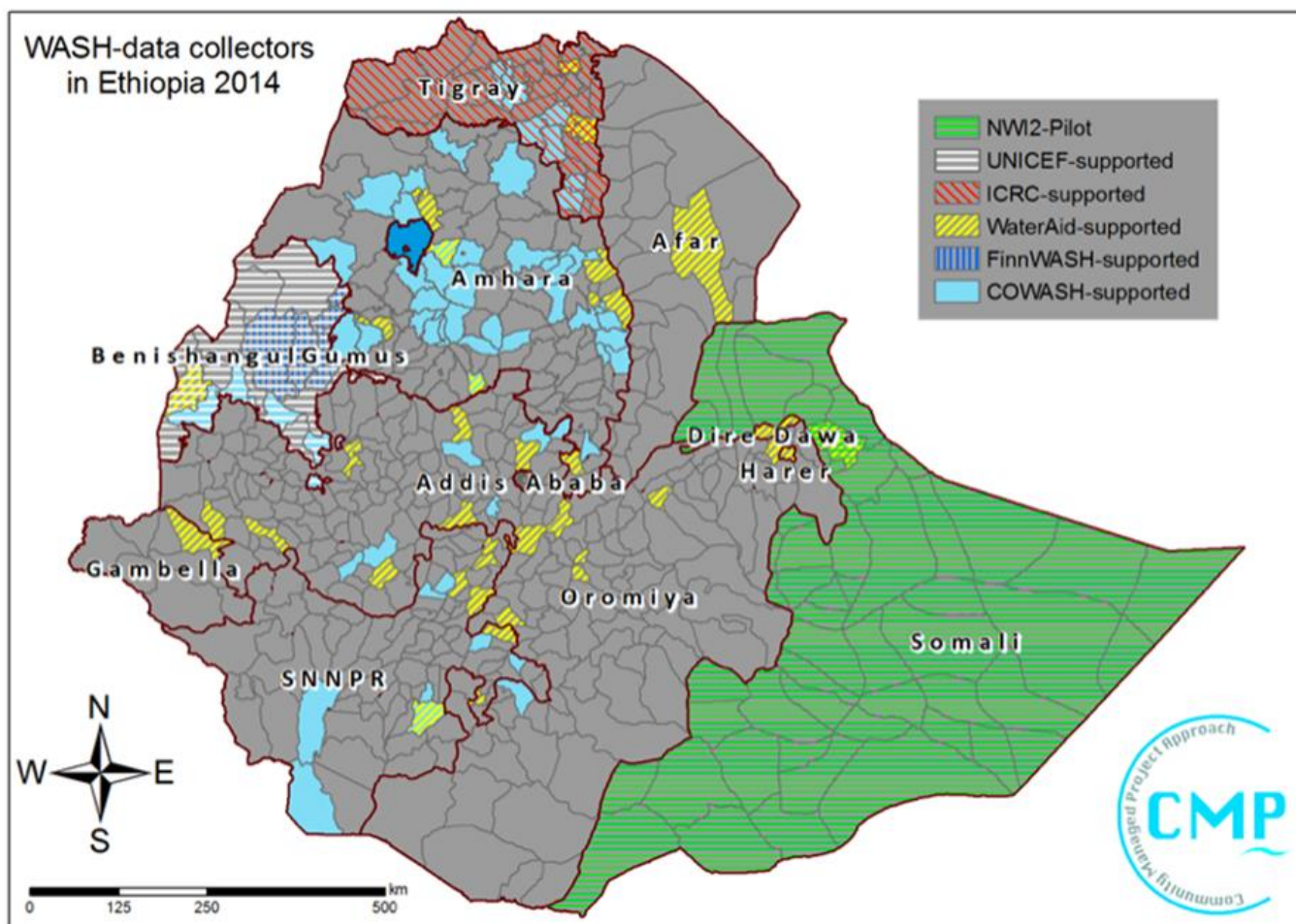
Annex 4: WaSH M&E Stakeholder Initiatives

This section reviews some of the key stakeholder initiatives taken that are relevant to the OBNP M&E. It highlights innovations in WaSH sector mapping and performance monitoring led by NGOs and development partners, and introduces the Health and Education sector Management Information Systems.

WaSH sector mapping and performance monitoring

There are several government agencies and non-government organisations supporting WaSH service monitoring in Ethiopia. Most activities in this area are focused on water point mapping, a tool that can help to visualise different aspects related to access to water supply. Together COWaSH, ICRC, UNICEF, and WaterAid are undertaking water point mapping initiatives in Woredas in every region, as shown in map 1. The systems shown in map 1 do not always use the same tools and systems for monitoring. Most of them map all services in the respective Woredas.

Importantly, when we discuss Sector Performance Monitoring we are talking about all services within a political administrative boundary, and not only the services provided by one or other NGO.



WaSH data collectors (Source: COWaSH)

Database Management: ICRC Sector Performance Monitoring in Tigray

ICRC have collaborated with the Tigray Water Resources Board to improve monitoring and management of rural water supplies in the region. The partnership began piloting different methods for improved information

management in 2010. In 2012 they started using a cloud-based database application called Majella which is now used across all 34 Woredas in Tigray.

In each Woreda there is a trained water resource expert, part of the regular government staff in Tigray, responsible for water point data. They collect the data from community and institutional water points on paper sheets and enter this into the Majella database at the Woreda office. Of these, 16 have WoredaNet and 18 use wireless internet to upload the data. Once the information is entered to the online database the water resource expert exports a backup of the data for use in Microsoft Excel. The plan is to share the data with the operation & maintenance department and the planning dept.

At the regional level there are water experts in BOFED who receive and clean the data, and perform analysis. Analysis and maps identifies the distribution of water points and highlights equity issues. This can be used for planning the extension of services. Updating is the biggest problem and data is not collected regularly. There is no structured process for regular data collection. They are interested in the real time data on functionality for rapid response but that does not exist.

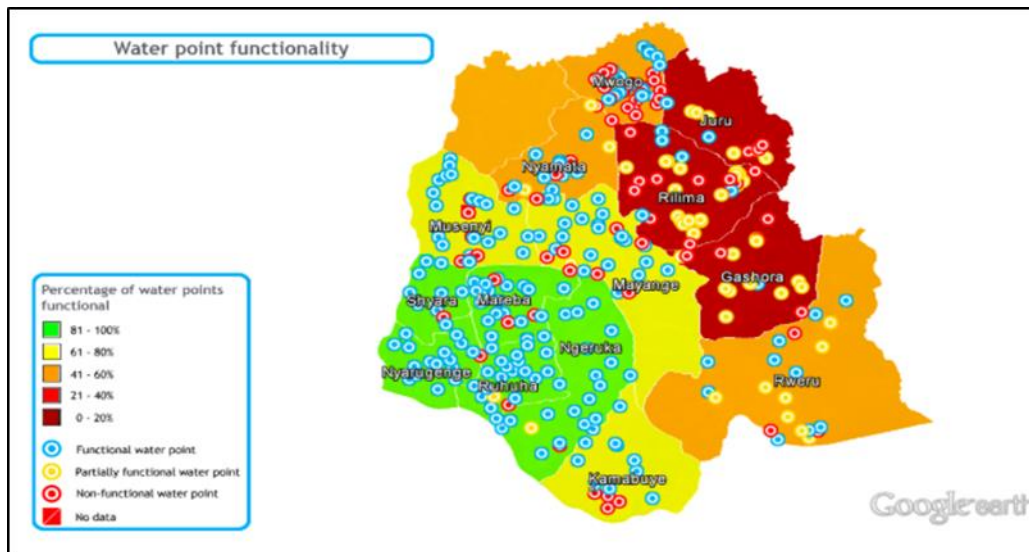
Challenges are staff turnover at bureau and Woreda level of technical staff. In some areas there have been challenges with commitment of Woreda staff to manage the process. There are also multiple databases at bureau and Woreda levels - NWI, COWaSH and Majella databases - and this can lead to confusion. Support from ICRC includes technical training on the Majella software, and provision of GPS and plotters. Strategy is to upload existing data into the system. Then the Woredas are responsible for collecting data and updating. For new water points there should be a data collection form but this has not been implemented yet.

At Kebele level there are technicians responsible for maintenance and monitoring of water points. They are reporting the functionality of services to the Woreda water resource expert. They are also undertaking maintenance of water points so they report heavy maintenance problems and not minor issues - if they can fix it they don't report it.

Local Analysis and Data Use: WaterAid Sector Performance Monitoring

Since 2009 WaterAid have supported Woredas to collect and analyse water point data. The information has led to improvements in service levels through increased funding and better targeted planning. The Woredas are using Water Point Mapper, a free and publicly available software designed for use at district level. The tool is based in Microsoft Excel and enables the user to enter geo-referenced data and create maps for any indicator they collected. This has been used to measure water point functionality, access and equity across Kebeles, water quality information and even the 1.5k radius of each water point. The tool works offline and generates maps which can be visualised on Google Maps or Google Earth, for where there is an internet connection and JPEGs for where there is no connection.

WaterAid have tried several models for collecting and updating the data. The main approach has been to support the Woreda WaSH Team to collect the data on paper sheets, which are then encoded to the Water Point Mapper spreadsheet. Analysis of the data is performed by the Woreda WaSH Team. Maps generated are used to respond to failures in service and inform targeted planning of Kebeles and communities with no or little service. Maps have also been used to advocate for greater prioritization of WaSH and in mobilising increased investment for rehabilitation and extension of services.



Sample output from Water Point Mapper (Source: WaterAid)

Health MIS of Ministry of Health

The Ministry of Health manages the Health Management Information System, or HMIS. This system is embedded in each health facility and Woreda across Ethiopia and provides regular and reliable information from rural communities, health facilities and hospitals to Woreda, regional and federal government. The information is used for directly responding to health emergencies as well as to inform annual planning.

The Health Management Information System is based on the following 4 principles:

- Standardisation
- Integration
- Simplification
- Institutionalisation

There are 16,000 health posts in Ethiopia: two health posts at each Kebele. Health Extension Worker's report community data to these health posts. Health facilities which have electricity report directly into the HMIS system. In cases without electricity the information is submitted to the Woreda Health Office for entering into the HMIS. Locally solutions are found for updating and submitting the information, such as using the electricity in nearby hotels to put data onto a CD for processing at the Woreda.

Verification is undertaken by performance monitoring teams at facility level and again at Woreda and regional levels. This process can identify accuracy of reporting and highlight over-reporting. Verification of data includes looking at trends over time for logical increments. Discrepancy of results can be investigated.

At Woreda level they can act on the data immediately if a direct response is required, for example a malaria outbreak. But information such as latrine access informs a longer-term plan and provides data with which to measure performance against targets. The information is annually compiled and informs a Woreda-based level plan. The 2014 data becomes the baseline for 2015.

There are no incentives for data collection - the reporting is part of the job and staff will fail their evaluation if they don't submit data regularly.

The Health MIS counts 108 indicators e.g. for maternal health, child health etc. There are 3 indicators for hygiene and environmental health: Proportion of households' access to any type of latrine facilities; Proportion of households that use latrine for defecation purpose properly; and Proportion of Kebeles declared open defecation free (Federal Ministry of Health, 2014). A proposal to go from 3 to 17 indicators has been accepted by the regions and must now be endorsed by the Minister. Some of the proposed indicators relevant for the OWNPN M&E system are: proportion of households practicing household water treatment and safe storage; proportion of schemes conducting water quality tests; proportion of drinking water supply schemes made safe as a result of remedial action; proportion of households who have hand washing facility.

For the GTPII there will be a revision of indicators.

Box 3. Rural sanitation and hygiene monitoring

Rural sanitation and hygiene monitoring has been the focus of a recent timely study by WSP, and a copy of the draft report has been made available to contribute to this review (WSP, 2015). This report already addresses an important gap for the OOWNP - a lack of sanitation reporting was identified in review for example of the IDA/DFID/AfDB-supported water and sanitation programme (forerunner to the CWA) - and provides a detailed analysis of indicators, targets, systems (the HMIS and the Hygiene and Environmental Health program monitoring) and makes specific recommendations. These include:

- to agree upon a standard set of sector indicators with clear definitions (the report includes proposals for core indicators to strengthen the existing HMIS indicator definitions)
- to focus on improving the robustness of the Hygiene and Environmental Health program monitoring systems initially since changes to HMIS indicators are not likely until 2016. This includes improving guidelines, establishing systems to collect disaggregated data across target groups, training, introducing new technology to support monitoring, promoting more two-way exchange of information and monitoring behaviour change through standardised methods.
- to develop a resourcing plan to strengthen the Hygiene and Environmental Health program monitoring system including necessary human and financial resources, and
- urging the Ministry of Health to contribute to operationalizing a wider OOWNP monitoring system.

Education MIS of Ministry of Education

“School facilities have an impact on access, quality, efficiency and equity. The school WaSH facilities are tools to attract students in general and girls in particular” Million Bekele, Ministry of Health.

There are over 17 million children in primary and 400,000 secondary education in Ethiopia. The Ministry of Health collects data from all the schools including simple indicators for presence of water points and latrines. This information is annually updated and available at federal, regional and Woreda levels.

Data is collected annually at each school by paper questionnaire. The questionnaires used until EFY 2007 include a small number of questions on WaSH. The questionnaire has moved from basic to more complex with introduction this year of a new questionnaire with greater indicators for evaluation of WaSH in schools. The questions for water sanitation and hygiene are aligned with the UNICEF WaSH programme advisors. A pilot survey is about to begin in 55 schools with the improved questionnaire. By EFY 2008 the new questionnaire will be integrated with EMIS annual questionnaire. The software customisation will be done after finalising the EMIS questions.

Every school sends the completed questionnaire directly to Woreda Education Office. Data is validated at Woreda level by Woreda Education Office Head. The process for validation is not clearly defined but is unlikely to involve visits or communication - simply checking the data appears to be right is what's expected. The Woreda Education Office sends the completed and verified questionnaires to the Bureau of Education at Regional Level where they are received and the data is encoded to Microsoft Access templates by the Regional EMIS Experts. There is no data validation at regional level. The Annual Regional EMIS update is submitted from Bureau of Education to EMIS & ICT Directorate at the Ministry of Education. At federal level the regional datasets are compiled to create the Annual National Update. Within the EMIS and ICT Directorate of Ministry of Education there are EMIS Experts at regional levels and four experts at federal level.

The database is being updated annually in-line with planning cycles. Data is expected to arrive in at federal level before July, however much of the information comes too late for use in the following year plans. The reason for delay largely comes from regions which have a great number of schools, each reporting and requiring validation and encoding.

Data is used for creating summary reports. Analysis and calculations are performed at both regional and federal levels for creating Annual Educational Abstracts. The federal Annual Educational Abstract is reported to

Parliament. The reports are used in the planning process to inform decisions on targeting and resource allocation. There is no planning at the Woreda level; plans are made at regional level and cascaded to Woredas where adaptation is carried out.

The EMIS database was developed in Microsoft Access by UNESCO. Technical and backstopping support was received until recently but there is presently no arrangement for support services and there is not the knowledge or skills within the EMIS team to make changes to the database.

Box 4. Monitoring Self-supply

Household level water supply interventions are now promoted as a service delivery model in suitable rural areas (mainly areas with accessible shallow groundwater) complementing community-managed systems. Monitoring self-supply is a challenge with orders of magnitude higher numbers of sources (similar to sanitation). The NWI household level surveys (2010/11) provide a useful partial baseline (partial since the question related to the main drinking water source). However, household level surveys are unlikely to be repeated in future. DHS surveys also report access to water on premises through the question on time to taken to collect water. We are not aware yet of any existing studies to compare and validate DHS results with respect to Self-supply provision. Monitoring of capacities to develop self-supply is also undeveloped such as monitoring the health of private sector business and supply chains, or access to micro-finance. The Millennium Water Alliance-Ethiopia Programme with partners such as World Vision are currently testing approaches to monitor Self-supply in their focus areas including trialling mobile data collection (using Akvo FLOW software) with household level facility surveys. It is important when evaluating 3rd party mobile data collection tools, to also assess the link needs of the system with HMIS and EMIS.

NGOs

As we have already seen there are good experiences in WaSH M&E innovation coming from NGOs. WaterAid, ICRC and COWaSH have done considerable work in collecting, analysing and using data in partnership with Woreda and regional government.

WaterAid and COWaSH indicators are fully aligned with the NWI indicators and use the NWI data collection format for their sector-performance monitoring initiatives. The data collected in these areas is not currently used to populate the WaSH MIS but could potentially do so in the future and there is evidence of this happening in other countries to assist the updating of national water point inventories. There are also some important lessons from their experiences of implementing monitoring systems at Woreda level which relate largely to the required technical capacity, funding and political will. The greatest challenge to these initiatives is in keeping the databases 'live'.

None of the NGOs are using the unique water point identifiers allocated during the NWI. In each case the NGOs have created independent ID systems for the Woredas. This issue is relevant and challenging. If there are not IDs visible at the water point it is impossible for those collecting the information to know how the individual water point corresponds with a water point in a database, and whilst village name or water point name is regularly used, this is often insufficient to correlate the information. A national referencing system must be established.

The ICRC monitoring in Tigray has highlighted some important aspects of implementation. One aspect of interest is the licensing costs. The initial annual cost was covered by ICRC. Following the pilot BOWIE committed to covering the costs, which were budgeted for and approved within the Bureau. The challenge arose with making the payment due to restrictions on government payments. The Bureau could not make payments with credit cards and therefore ICRC have resumed responsibility for the annual license payments.

There is a strong opportunity to collaborate with such NGOs and initiatives, use their monitoring experiences and align their M&E experiences and systems with the OWNPN M&E system.

Sustainability checks

The sustainability of water, sanitation and hygiene services delivery is a widespread concern within the sector. Many WaSH systems provide lower than expected levels of service (see for example Adank et al, 2015) and break down before the end of their design lifespan. There is a need for institutional, technical and financial arrangements to be in place at all levels (service provider level, support authority level (Woreda, zone, region) and national level) in order to ensure the provision of sustainable WaSH services, support to service providers and a conducive enabling environment. Furthermore, mechanisms should be in place to ensure that WaSH services do not have a

negative impact on the environment and to ensure that there is social inclusion in the use and provision of these WaSH services.

Sustainability checks address this issue by providing a framework for assessing whether or not, or in how far, the conditions for sustainable WaSH service provision are in place. Sustainability checks have the potential to drive improvements and inform action. Recently, some experimentation has been taking place with the use of sustainability checks in the Ethiopian WaSH sector. Unicef, in collaboration with RiPPLE have undertaken a sustainability assessment using a sustainability check framework (Le Monde Health and Development Consultancy PLC, 2014). Aguaconsult is currently applying sustainability checks for USAID looking at rural projects implemented by Save the Children and IRC (International Rescue Committee). Furthermore, IRC is facilitating the development of a sustainability check framework under Unicef's One WaSH Plus Project, with input from a wide range of sector stakeholders. This framework will be tested and used in the eight One WaSH Plus towns and the surrounding rural areas to assess the sustainability factors related to rural water supply, urban water supply, rural sanitation, urban sanitation and institutional WaSH. This is intended to inform the potential uptake of (elements of) the sustainability check framework within the One WaSH National Programme M&E and wider sector monitoring.

Water quality monitoring

The recently developed National Drinking Water Quality Monitoring and Surveillance Strategy (MoH, 2014), sets out plans to revamp water quality monitoring processes. It includes the establishment of a water quality monitoring and surveillance database, and innovations such as the promotion of water safety planning. Considerable investment is planned including through the CWA programme.

Key stakeholders related to water quality monitoring are the Ministry of Health, the Ethiopian Food, Medicine and Health Care Control and Administration Authority and EHNRI Public Health laboratories as well as water sector institutions.

Costs of Woreda level mapping

The NGOs involved in a range of cases have also provided useful information about the costs of water point mapping across sub-Saharan Africa. Whilst it is not clear which figures have used which calculating methods, the information can provide a useful guide. The average from these cases is 0.16 USD per capita for reported costs. A quick extrapolation of 94.1 million people is a little over 15 million USD.

Country	Reported cost	Per person
Ghana	0.12 USD per person	0.12
Liberia	45-50 USD per water point	0.10
Malawi	10 USD per water point	0.05
Mozambique	0.17 USD per person	0.17
Swaziland	0.47 USD per person	0.47
Tanzania	7500 USD per district	0.06

Source: Rural Water Supply Network

We were able to ascertain some costs for water point mapping activities in Ethiopia. The costs provided from each organisation are not meant to be compared against each other since they represent different costing calculations for different activities related to WPM. However, taken together these costs can provide useful insight into the financial implications of WPM initiatives.

Initiative	Included in cost	Cost
NWI	Budget utilized at federal level, GPS apparatus, printing format, UNICEF support, data collection, entry, clearance and verification, and logistics	11,900,601 USD
ICRC	Annual database license cost	3,000 USD
COWaSH	Vehicle fuel, maintenance, stationery & per diems*	273 Birr per water point

ANNEX 4: WASH M&E STAKEHOLDER INITIATIVES / DIAGNOSTIC REVIEW REPORT

WaterAid	Computer, GPS, training, verification, updating**, printing	2,819 USD per Woreda
WaterAid	Allowance & fuel for data collection	29,500 Birr per Woreda

* some costs are funded by ICRC and some by government

** updating cost is an estimate and not based on experience

Although the initial project outlay for financing water point mapping activities has been significant large datasets have been collected for relatively small funds, and these datasets provide a valuable snapshot of the WaSH service levels. The challenge, however, comes when financing for the on-going monitoring becomes the responsibility for the local government. The average costs per district are usually well beyond the financial capacity for local governments. The result is either that NGOs continue to pay for updating, or too often the updating does not happen and the dataset becomes older and less relevant with each passing year.

Annex 5: Design-Reality Gap Framework

- **Information** (data stores, data flows)
 - Clear indicators
 - Clear parameters/questions
 - Alignment of information with other user information
 - Frequency (is data collected at a frequency which matches the expected use of the information; what frequency)
 - Coverage (does the data cover all areas required for decision making and analysis as intended)
 - Scale (does the data cover all geographical scales intended, e.g. got, woreda, region, etc.)
 - Collection (are collection processes in place to maintain or improve frequency, coverage and scale)
 - Access (are processes in place to assure access to decision makers and users)
 - Representativeness (do the data and flows provide information that represents the overall objective of the system)
 - Versioning (does the data update over time and allow comparisons over time)
 - Conflict resolution (can duplicate values be combined or resolved, can conflicting data be managed in the database)
 - Authenticity of data
 - Clear sources of data
- **Technology** (hardware, software)
 - Interoperability (is data possible to export and import; is there an API for dynamic import and export; is it available offline; is it available online; is there versioning and conflict resolution; import also keeps metadata and provides sources of data, export keeps all data)
 - Configurability by administrators (do administrators have the option to change indicators)
 - Appropriate user interface, if required:
 - Offline use (is the hardware and software available offline)
 - Online use (is the system available through a web interface or an application that uses internet)
 - Mobile use (is there a mobile accessible website)
 - Phone use (are there voice, USSD or voice functions)
 - Compatible physical/paper templates
- Data security (do users have assurance that their data is safe from destruction, theft, etc., there are regular and multiple asynchronous backups)
- User security (do users have access rights based on permissions and their roles and functions, is data separated and aggregated appropriately)
- Appropriate power/energy requirements
- Appropriate maintenance requirements
- Appropriate space requirements
- Appliance security (protection from fire, theft, etc.)
- **Processes** (activities of users and others)
 - Access to the system

- User administration
- Data collection and submission
- Data management
- Data analysis
- Generation of reports
- Dissemination
- Changing indicators and parameters
- **Objectives and values** (culture, politics)
- Familiarity with the technologies
- Ownership of data
- Ownership of technology
- Willingness to share
- Openness to validation
- Respect for hierarchy/roles and responsibilities
- Language
- Localisation
- Font/scripts
- **Staffing and skills** (quantitative and qualitative competencies);
- Competency in training new users / staff
- Competency in managing users
- Competency in managing data
- Competency to adapt the tool indicators
- Redundancy of skills
- **Management systems and structures**
- The ultimate owner of the system is clear: the system client is clear and not ambiguous, e.g. financier does not determine the role or form of the system or related IT services
- System user and their responsibilities are clear
- Clear system management and administration in place
- Clear roles and responsibilities
- Clear decision making processes
- Data management strategy/plans are in place
- Data collection strategy/plans are in place
- Data cleaning and quality assurance strategy/plans are in place
- Data dissemination strategy/plans are in place
- Turnover rate of staff capable of work with the system
- ICT support partners available on call down or fixed contracts
- Management appreciation of the MIS
- Management MIS plan is available
- Management plan for covering associated costs of MIS plan activities

- Management understanding technical staff requirements
- Management understanding of the MIS capabilities
- **Other resources** (time, money)
 - Cost of installation
 - Cost for operations
 - Costs for training
 - Finance for operational costs
 - Finance for installation costs
 - Finance for training
 - Time for technical support
 - Time for required field work