STRENGTHENING SANITATION AND HYGIENE IN THE WASH SYSTEMS CONCEPTUAL FRAMEWORK

DISCUSSION PAPER
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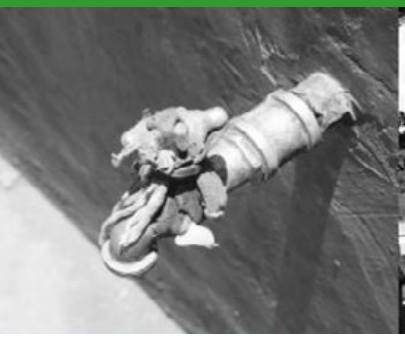

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ABBREVIATIONS

A4C	Agenda for Change
CapEx	Capital Expenditures
CapManEx	Capital Maintenance Expenditures
CBM	Community-Based Management
CHC	Community Health Clubs
CLTS	Community-Led Total Sanitation
CWIS	City-Wide Inclusive Sanitation
DRR	Disaster Risk Reduction
FIETS	Financial, Institutional, Ecological, Technical, Social
FSM	Faecal Sludge Management
GESI	Gender, Equity & Social Inclusion
GTO	German Toilet Organization
LCCA	Life-Cycle Cost Approach
MB-SP	Market-Based Service Provider
NGO	Non-Governmental Organisation
OD	Open Defecation
ODF	Open Defecation Free
O&M	Operation and Maintenance
OpEx	Operational Expenditures
PHAST	Participatory Hygiene and Sanitation Transformation
SA	Service Authority
SDG	Sustainable Development Goals
SFD	Shit Flow Diagrams
SFF	Sector Functionality Framework
SP	Service Provider
SSI	Sustainable Services Initiative
SuSanA	Sustainable Sanitation Alliance
SWA	Sanitation and Water for All Partnership
UCLTS	Urban Community-Led Total Sanitation
VcA	Viva con Agua
WASH	Water, Sanitation and Hygiene
WASH-BAT	WASH Bottleneck Analysis Tool
WHH	Welthungerhilfe
WSUP	Water and Sanitation for the Urban Poor

PREFACE

For Welthungerhilfe, the initiator of the Sustainable Services Initiative[1], there are two key drivers for improving the impact of our work on nutrition security that has led us to commission this discussion paper: the need for WASH services that are sustainable, and the need for better integration of Sanitation and Hygiene in an existing system strengthening sustainability framework.

As an organisation, Welthungerhilfe is committed to contribute to the achievement of SDG2, ending hunger. People, who suffer from food and nutrition insecurity, are often the very same people who lack access to water, sanitation and hygiene. WASH plays a fundamental role in improving nutritional outcomes: 50% of malnutrition is associated with repeated diarrheal or intestinal worm infections as a result of unsafe water, inadequate sanitation or insufficient hygiene. The link between nutrition security and WASH is mainly rooted in safe sanitation and good hygiene practices. From our point of view access to safe water alone is not enough to impact on nutrition. It's all of WASH that matters.

In 2012, alarmed by reports of high levels of non-functionality of infrastructure and by political debates in the donor community demanding value for money, we carried out ex-post sustainability assessments for a number of our WASH programme countries – with the bitter result, that Welthungerhilfe too has a sustainability problem. This became our starting point for a longer journey towards sustainable WASH services.

In 2015 we decided to launch the Sustainable Services Initiative (SSI) with funding support from Viva con Agua. Not even aware of "systems strengthening" in the WASH sector at that time, we joined forces with two strategic partners, Aguaconsult, with years of experience in WASH-sustainability and the German Toilet Organisation, with a core mandate of Sanitation in Hygiene. In 2017 Welthungerhilfe joined the Agenda for Change[2] – a major milestone that exposed us to the District Wide Approach and the importance of the sustainability building blocks.

The premise of this paper is that after more than a decade of learnings and research by the wider WASH community in developing proven frameworks for system strengthening with a principal focus on water supply, we now need to integrate sanitation and hygiene in a much more comprehensive way. This means not only introducing the language of sanitation and hygiene into existing tools and frameworks but applying a lens that can translate the specific requirements, challenges and opportunities relating to these core areas of our work.

This paper is the result of our drive to improve the impact of our work. It is meant to be a discussion paper based on the experience of the SSI-partners. It does not claim to comprehensively address all aspects of the topic in a rigorous manner, rather we intend it to stimulate discussions around the integration of sanitation and hygiene into the WASH systems strengthening efforts of our field teams, the broader sanitation and hygiene community and the Agenda For Change.

We welcome your feedback and many thanks to all of you that have contributed!

Bettina Iseli

Director Programmes, Welthungerhilfe

[1] The Sustainable Services Initiative (SSI) is an internal initiative of the International NGO Welthungerhilfe (WHH), in partnership with Aguaconsult and German Toilet Organization (GTO) and financially supported by Viva Con Agua (VcA). The SSI seeks to improve the sustainability of WHH's WASH programmes, primarily through encouraging the uptake of a systems strengthening approach on the part of WHH programmes, and to advocate in the sector for a more sustainable approach to WASH programming

[2] Agenda for Change (A4C) is a collaboration of like-minded organisations[2] who work with an agreed set of common principles and a focus on harmonised district-level work to support local and national governments in strengthening WASH systems. A4C serves as a catalyst for collective action and for organisational behaviour change, in order to achieve a greater impact towards universal sustainable water, sanitation and hygiene (WASH) services. WHH joined A4C in 2017.

EXECUTIVE SUMMARY

WHAT IS THE PURPOSE OF THIS DISCUSSION PAPER?

The Sustainable Services Initiative (SSI) of Welthungerhilfe (WHH) seeks to strengthen the sustainability of its WASH programming through adopting systems strengthening approaches and seeks to add value to wider sector efforts in systems strengthening, through participation in movements such as Agenda for Change (A4C). The SSI is primarily financed by Viva con Agua and WHH with technical support from Aguaconsult and German Toilet Organisation.

The genesis of this paper was during the SSI kick-off workshop, when WHH country teams received orientation to concepts of WASH systems and systems strengthening. Participants remarked on the apparent 'water bias' of what was being presented, and the SSI technical team was subsequently tasked to revise the tools and conceptual framework used in the SSI to better address sanitation and hygiene. Indeed, the sentiments from the workshop participants reflect the wider position of those working at WASH systems globally at the time[3]. It was agreed that a discussion paper be developed, not only for the SSI's internal purposes, but also to contribute to the wider sector debate around how to better capture sanitation and hygiene in WASH systems thinking and approaches.

This discussion paper reflects the SSI's evolving thinking on this topic, particularly on questions such as: what are key differences between water supply, sanitation and hygiene that may affect systems strengthening approaches?; are conceptual frameworks and concepts for 'WASH' systems fully applicable to all three WASH sub-sectors?; if not, what adaptations are needed?, and; what examples are there of systems strengthening that are specific to sanitation and hygiene? The paper seeks to prompt and contribute to sector discussions and add to the available documentation on this somewhat neglected topic. It does not aim to be the definitive word on sanitation and hygiene systems strengthening, nor does it seek to prescribe specific concepts and frameworks to the wider sector.

WHAT SYSTEMS CONCEPTS AND FRAMEWORKS IS THE PAPER REFERRING TO?

The concept of a WASH 'system', and the recognition of the need to strengthen it to ensure sustainable services at scale, has gathered momentum in the sector in recent years (WaterAid 2019). Huston & Moriarty (2018) define a WASH system as 'all the social, technical, institutional, environmental and financial factors, actors, motivations and interactions that influence WASH service delivery in a given context'. Systems thinkers often refer to institutional 'levels' and categories of 'actors' within a system, including: the national (sector) level authorities - responsible for aspects such as legislation, policy and regulation; 'Service Authority' those legally responsible for WASH services in a defined area (which is often, but not always, local government); and 'Service Providers' - those responsible for the day-to-day operation and management of WASH services (Lockwood & Smits, 2011; IRC 2018; Lockwood et al. 2017).

Figure 1: WASH System Conceptual Framework referred to in Agenda for Change publications. Source: A4C website[4]

To reduce complexity, various organisations have developed conceptual frameworks to represent the WASH system[5], categorising 'factors' into what are often termed 'building blocks', which need to be in place, and

[3] The difference in service delivery models between water and sanitation, and the need for further work on integrating sanitation and hygiene into systems conceptual frameworks and processes is reflected in Huston & Moriarty (2018), and Tillett & Smits (2017)

[4] https://www.washagendaforchange.net/sites/default/files/uploads/20180827_agenda_for_change_building_blocks_presentation.pdf

[5] For example, SWA's 5 sector building blocks, WSUP's Sector Functionality Framework, IRC's 9 building blocks of a WASH System, and the 7 building blocks used in the WASH Bat sector analysis tool, CWIS's 7 principles, and Triple-S's 10 building blocks on rural water.

sufficiently developed, to support sustainable service delivery[6]. The number of building blocks and categorisation varies between frameworks, depending on the 'boundary' of the system for analysis (e.g. within a city or district, or analysis at sector level), and the specific focus of such a framework. However, despite differing numbers of building blocks, there is much commonality between frameworks and in terms of factors. The framework presented in **Figure 1** is cited in numerous A4C-related publications[7], and is based on the work of Aguaconsult, IRC and the World Bank, amongst others. The framework presents eight building blocks and political economy and governance as wider factors (beyond just the WASH system boundary) influencing the system and shows the interface with other sectors, such as health and education. As a member of A4C, WHH adopted this framework with eight building blocks for use in the SSI, and it is this framework which is the subject of the analysis in this discussion paper.

Various organisations which use such building block frameworks have developed a series of indicators (or 'sub-factors') defining (generically) what needs to be in place within each area to increase the likely sustainability of services. Such checklists are used for systems analysis, and to an extent for monitoring systems change[8]. Again, there is no sector-wide consensus on these sub-factors. An initial building block checklist was developed by the SSI, and was intended to represent all three sub-sectors of WASH. It is this SSI checklist, together with the list of factors suggested in a recent building block paper by IRC (Huston & Moriarty 2018), which are used in this paper.

HOW IS SANITATION AND HYGIENE DISTINCT FROM WATER SUPPLY, AND WHY DOES THIS MATTER?

WASH is a combination of three distinct sub-sectors (water, sanitation and hygiene). Whilst there is much similarity between them, there are also important differences, meaning that concepts or approaches for water supply may, or may not, be applicable for sanitation and hygiene, and vice versa. Below some of these key differences are identified and expanded upon as having an influence on how to conceptualise a WASH 'system' and the design of approaches to strengthen it.

- **Water supply is a public good, sanitation is often seen as a private good.** Whilst water supply is widely regarded a public service and generally delivered through infrastructure serving multiple households and in cases across several communities or small towns, outside of contexts where sewerage networks prevail, sanitation is often perceived a private good, particularly where the government or sector focus is on household toilets rather than the wider sanitation service chain. This means that service delivery models (particularly in rural areas) often take a communal approach for water but a household approach for sanitation (Huston & Moriarty, 2018). Hygiene products and services are generally considered private goods.
- **This distinction has implications for the roles and responsibilities of service authorities.** In public water supply, the responsibility to ensure the service rests with the service authority. It often has roles including capital investment and ongoing support and monitoring, with daily operation and maintenance (O&M) done by a mandated service provider. For domestic toilets and hygiene, the responsibility for construction and financing sits with the household (or landlord), who is also generally responsible for the daily 'O&M' of the toilet 'service'. In this, the role of the service authority in sanitation and hygiene is more around ensuring an enabling environment for households and market-based service providers (e.g. masons, toilet emptiers); this contrasts with the more direct role of a service authority in ensuring provision of water supply services[9].
- **The distinction makes the definition of a 'service provider' less clear.** A service provider is responsible for daily O&M and management of a WASH service. Whilst the term service provider is applicable for management of sludge treatment plants, and construction and emptying of toilets, it is less applicable for the daily 'O&M' of toilets, which is essentially done by households[10]. Households are generally defined as 'users' rather than 'service providers' in WASH systems concepts, meaning such definitions of the term "service provider" require further consideration[11].
- **It also influences which aspect of the system, or actors need to be strengthened.** For water supply, a common focus of systems strengthening is on government processes and on strengthening capacities of public water supply service providers. For sanitation and hygiene, whilst government systems and capacity

[6] Whilst WaterAid (2019) points to the risks of oversimplifying the complex, dynamic and adaptive WASH system into such building block frameworks, it also acknowledges the utility of such frameworks to help simplify, categorise and analyse more 'static' factors in the system.

[7] https://www.washagendaforchange.net/sites/default/files/uploads/20180827_agenda_for_change_building_blocks_presentation.pdf

[8] WaterAid (2019) highlights risks and recommendations on checklists, and on using such checklists for ongoing monitoring processes.

[9] However, moving beyond toilets to the wider sanitation service chain, services such as toilet emptying, and particularly sludge treatment, can bring sanitation closer to a 'public good', with greater responsibilities of the SA to ensure service provision.

[10] IRC (2011) states that the concept of a sanitation service does not necessarily imply an external service provider, but rather households take much of the role to ensure the service.

[11] The term 'service' is arguably less applicable for hygiene than it is to publicly provided water supply, or sanitation services across the value chain. The WASH Cost programme defined the hygiene 'service' as the 'service' of households receiving ongoing hygiene promotion messaging (IRC 2011), which is quite different to a water supply or sanitation service, with their more easily definable 'levels of service'.

are still critically important, for example, in creating an enabling service environment, there is also a need to focus on strengthening market systems and capacities of market-based service providers such as masons or faecal sludge management (FSM) actors.

- **Water is life, while sanitation and hygiene have greater links with culture and individual behaviours where people always have a choice.** Drinking water is a basic requirement for life and broadly speaking there is demand from users for water supply services. By contrast, the benefits of sanitation and hygiene are not always directly apparent to users and may be viewed as more 'optional' and hinged on user behaviours[12]. Whilst issues of demand creation, social norms and enforcement are important for water supply, they are critical for sanitation and hygiene, and need ongoing reinforcement[13].
- **Sanitation often lacks political capital compared to water supply.** Sanitation and hygiene often fail to receive adequate political interest and commitment, in comparison to water supply. This is in part reflective of demand and priorities of would-be voters, of cultural factors making discussion of sanitation undesirable, and of the less clear role of the service authority to provide sanitation and hygiene services. In this regard, strengthening stakeholder awareness and commitment on WASH, is critical for sanitation and hygiene.
- **Responsibilities for sanitation and hygiene can be poorly defined or overlapping.** Whilst water supply often rests with one ministry and local entity, sanitation can be split across numerous ministries and entities, sometimes with overlapping or poorly defined mandates. Efforts to strengthen WASH systems will need to consider multiple ministries and consider the linkage with other sectors, such as health and environment.
- **Definitions vary on what is 'included' in the terms 'sanitation' and 'hygiene'.** Whilst the definition of 'drinking water supply' is relatively straightforward, it is more varied for sanitation and hygiene. Different sector actors may include or exclude aspects of sanitation and hygiene, according to programme focus or sector mandates[14]. This implies that the 'boundaries' of what may be included within the overall 'WASH system' needs to be carefully considered.

In the development of this paper, it became apparent that there are similarities between sanitation and hygiene and domestic self-supply for water[15]. Domestic self-supply is also often considered a private good, with corresponding implications on the responsibilities of households and service authorities, and thus similarities of service delivery models. Self-supply is also arguably another aspect of WASH that has received less consideration in WASH systems thinking to date.

WHAT MODIFICATIONS ARE PROPOSED TO BETTER INCLUDE SANITATION AND HYGIENE?

From the preceding analysis, the following modifications to the conceptual framework are proposed, to better capture sanitation and hygiene. Changes are presented in red in **Figure 2,** and described in the text below. It should be noted that some adaptations are proposed to generally strengthen the framework, applicable to all three WASH sub-sectors.

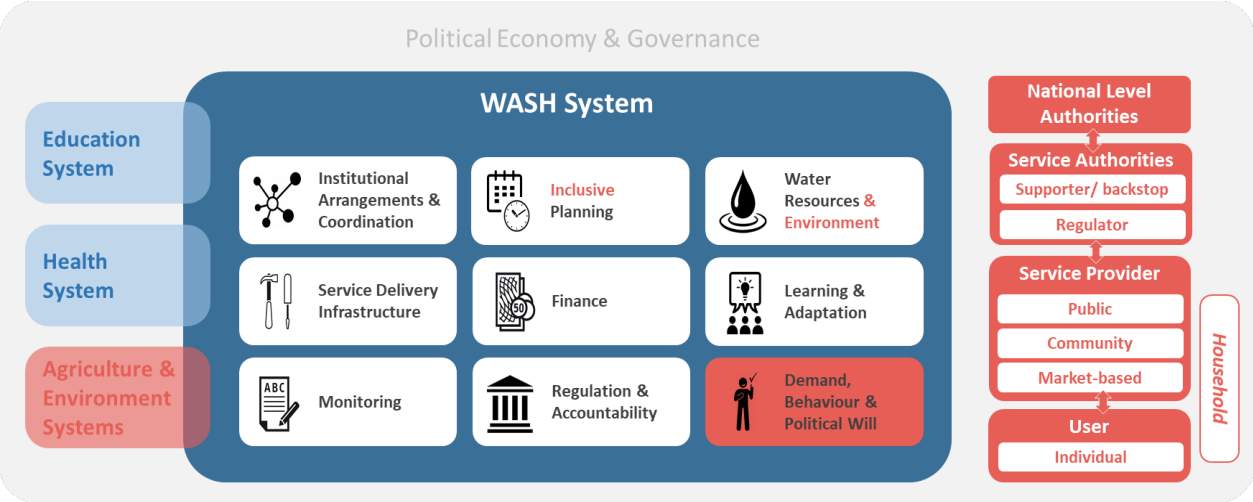

Figure 2: Adapted WASH Systems conceptual framework, proposed by the SSI. Source: Authors

[12] For example, a user can choose to use a toilet or not or choose to opt for a 'safe' or 'unsafe' mode of toilet emptying.
[13] WaterAid (2018) highlights the need for behaviour change communication, which is ongoing, informed by formative research, and adapted through close monitoring, to be considered as key factors when looking at hygiene from a systems perspective.
[14] For example, is solid waste management and animal excreta included, or just human faecal waste? Is 'sanitation' relating to only toilets or the wider sanitation service chain? 'Hygiene' is not a single topic but refers to a number of sub-topics.
[15] An approach of incremental water supply improvements mainly financed by users (RWSN: www.rural-water-supply.net/en/self-supply)

Building Blocks (factors): It is proposed to (1) create a ninth building block focussing on 'human' and 'dynamic' factors, including demand (creation), and reflecting political will within the WASH system more explicitly,[16] [17]; (2) to include 'environment' within the water resources building block, highlighting the interface between sanitation and hygiene and water, and potential resource re-use in FSM; and (3) to ensure inclusion issues are captured In the framework (see 'Planning' building block)[18].

Actors: To include 'actors' and 'levels' into the framework, which better represent these aspects of the system, and to highlight the importance of linkages between them[19]; to include (1) 'users' within the system, highlighting the criticality of user choice and behaviour; (2) to present different types of service providers, (3) to highlight the need to consider market-based players[20]; (4) to identify where further thought is needed as to whether households should be captured as a service provider and; (5) clarifying in the title that service authorities and national level authorities may be plural rather than singular, to highlight that WASH may cut-across multiple organisational mandates.

Interface with other sectors: To include reference to agriculture and environment sectors, to highlight important links between WASH and these sectors, particularly regarding the 'closing the sanitation loop' agenda.

Existing detailed lists of sub-factors which are stated to be critical to be in place behind each of the building block have been analysed. Adaptations to these sub-factors are presented in Section 5 of this report, which form a checklist that can be applied when analysing a WASH system[21]. **Figure 3** provides an overview of which key aspects are included per building block, building on earlier work of organisations in the sector.

Figure 3: Sub-factors within each Building Block. Source: Authors

[16] It is SSI's experience that having factors captured within building blocks may increase the chance of the factor being considered, analysed and addressed. As such, it is proposed to bring political aspects within the WASH system boundary into the building blocks, to ensure it is considered.

[17] Behaviours, attitudes and commitment is captured in WSUP's sector functionality framework, and WaterAid (2019) recommends ensuring dynamic factors such as political aspects are considered in systems analysis. SWA presents 'Political Leadership' as 'an additional building block'.

[18] This aspect is valid for both water and sanitation, and should be captured in the framework. WaterAid has a specific building block on GESI issues.

[19] Whilst the concepts of levels and interactions between them is not new in systems thinking, it was not included in the A4C framework.

[20] Relevant for water supply, and particularly critical for sanitation, given the prevailing service delivery model.

[21] SSI acknowledges the risks that WaterAid (2019) raised on using checklists. The checklist has been designed cognisant of their recommendation, and checklist application by SSI aims to be adaptive through time. Further monitoring tools may be added in future.

WHAT EXAMPLES ARE THERE OF SYSTEMS STRENGTHENING SPECIFICALLY FOCUSSING ON SANITATION AND HYGIENE?

Having proposed a checklist for analysing WASH systems in **Section 5**, **Section 6** of this paper presents examples of actions which organisations such as WHH could undertake to strengthen the various building blocks that make up the broader WASH system.

CONCLUSION

This paper aims to contribute to the sector debate on how sanitation and hygiene can be better captured in WASH systems thinking. It is a discussion paper rather than position paper and does not seek to prescribe frameworks or practices, which will vary between contexts.

The authors conclude with a call to action to the wider sector: to encourage organisations and governments to continue to evolve the scope and focus of WASH systems thinking, to capture elements and approaches which have received less attention to date, such as sanitation and hygiene[22], and also water self-supply. They furthermore encourage greater dialogue between WASH systems thinkers and sanitation and hygiene communities of practice and call on organisations to document examples of systems strengthening in sanitation and hygiene and develop materials to guide practitioners. The authors would welcome constructive feedback on the content of this discussion paper and look forward to participating in any discussions that are generated from its publication[23].

[22] The authors recognise that this paper focusses more on sanitation than hygiene and suggest a 'deep dive' on hygiene would also be useful.

[23] Feedback can be sent to Robert Gensch (robert.gensch@germantoilet.org) and Will Tillett (w.tillett@aguaconsult.co.uk)

1. RATIONALE AND BACKGROUND FOR THIS PAPER

A central focus of the Sustainable Services Initiative (SSI) and Agenda for Change (A4C) is on systems strengthening, which is a foundation for ensuring sustainable WASH services for all. There are various conceptual frameworks in the WASH sector which describe what a system 'looks like' and the key components required to be in place for WASH services to be sustained. It is important to note that there is no commonly agreed, universally applied conceptual framework for WASH systems and actors have different perceptions of what a WASH system is (and what it takes to deliver WASH services). Several conceptual frameworks have been developed by different organisations and initiatives, using slightly varying definitions, with different lenses or focus on the WASH sector, analysing different 'levels' of the sector (e.g. national, within a city, etc.) and with different factors or conditions. Despite these variations in interpretation, there is an overwhelming commonality in the scope and content of the frameworks (WaterAid 2019), which reflect positively on a collective movement towards understanding and finding solutions to the challenges of poor WASH service delivery.

Whilst much work has been undertaken in the global WASH sector on conceptualising and documenting examples for systems strengthening, most efforts to date have tended to focus more on water supply services than on sanitation and hygiene. Indeed, it is acknowledged within the A4C that much of the systems thinking has tended to focus on rural water (Huston & Moriarty 2018, Tillett & Smits 2017) and work is now starting to ensure sanitation and hygiene is better reflected in concepts and approaches.

WHH is an organisation with a core mandate on food and nutritional security and has a history of placing particular emphasis on the sanitation and hygiene dimension of WASH. During an initial orientation workshop of the SSI, it was highlighted by the WHH country team participants that some of the conceptual frameworks and many of the examples used to explain systems strengthening largely focus on water and that in practice WHH country programmes needed more guidance on systems strengthening for hygiene and sanitation activities. It was therefore requested that the SSI technical team worked on elaborating guidance for systems strengthening for sanitation and hygiene, with the main focus on rural low-income contexts, which has been the focus of much of WHH's WASH programming to date.

An initial step in this process involved the review of the WASH systems conceptual framework often referred to in A4C (see **Figure 4**) and the building block checklists used as part of the SSI programme[24]. This process highlighted the need to evolve the conceptual model, and to add components to the SSI checklist, to better represent sanitation and hygiene aspects of WASH systems. It was further requested that sanitation and hygiene-specific examples were provided of systems strengthening across each individual building block of the WASH system.

Whilst this work was initially inward-looking (e.g. it focussed on the needs of WHH teams), it was agreed that this process and outputs developed could be beneficial to the wider sector, in particular for practitioners and thinkers in both systems strengthening and the sanitation communities of practice. Hence, the primary goals of this discussion paper are:

- To propose modifications to both the conceptual framework referred to by A4C, and the SSI building block checklist;
- To better represent sanitation and hygiene in terms of key elements which need to be in place across the various sustainability building blocks;
- To provide examples for implementing organisations such as WHH on practical actions which can strengthen sanitation and hygiene aspects of the WASH system.

The paper seeks to contribute to the growing global WASH sector debate about how systems strengthening concepts apply to sanitation and hygiene and as a starting point to foster dialogue between WASH systems advocates and the wider sanitation and hygiene community. Beyond WHH country programmes, the target audiences for this paper are WASH sector professionals involved in sanitation and hygiene and systems thinking and practitioners, who are currently applying or interested in adopting, a WASH systems approach in their work.

This document is intended as a discussion paper, reflecting work-in-progress, experiences and ideas from the SSI for the wider sector. It does not seek to be a 'definitive word' on sanitation and hygiene systems strengthening, nor intend to prescribe the frameworks or checklists in this paper to the wider sector.

The main focus of WHH programming in the SSI to date is in rural areas, where Community-Based Management (CBM) of water supply, and community-based behaviour change approaches to sanitation and hygiene[25] are

[24] The framework often cited by A4C, seeks to identify factors that influence sustainable WASH services (e.g. 'building blocks' and wider contextual factors). WHH is a member of A4C, and the SSI has adopted this framework, with its eight building blocks (see chapter2). From the conceptual framework, various organisations in A4C (including the SSI) have developed system diagnostic tools, such as 'building block checklists', which identify what is currently in place, and where the gaps are to ensure sustainable service delivery within a specific area of the system.

[25] like Community-Led Total Sanitation (CLTS), Participatory Hygiene and Sanitation Transformation (PHAST), Community Health Clubs (CHC) or similar

the predominant service delivery models. However, the wider sanitation value chain is included wherever applicable, and the paper seeks to complement work done by others on conceptualising city-wide sanitation service delivery (e.g. WSUP[26]). Therefore, the paper is particularly adapted to rural contexts, without neglecting the urban dimension and a wider range of service delivery models.

2. INTRODUCING WASH SYSTEMS AND THE CONCEPTUAL FRAMEWORK

The SDGs require a shift in ways of working from the status quo of the last thirty years, if the widespread challenges of both universal access and sustainability in the WASH sector are to be overcome. Approaches to sustainability have evolved over time and there is growing consensus on the need to understand and strengthen the wider 'WASH system' at the national through to local levels, to ensure WASH services can operate at scale, and most critically, can be sustained.

It has long been the case that WASH 'projects' tend to focus on community level service providers and infrastructure, without a broader appreciation of the enabling factors which need to be in place to support and sustain these local structures. A WASH system should therefore be seen as the people, components and functions that are needed to deliver sustainable WASH services. It includes all actors (people and institutions) and factors (e.g. infrastructure, finances, policies and environmental conditions) that affect and drive the system (Huston & Moriarty 2018). At the core of a systems approach is the understanding of the need to support and strengthen the wider eco-system which enables and supports sustainable WASH service delivery. Systems strengthening therefore seeks to understand where the gaps and weaknesses are, who is working across different dimensions of the system, and to take collective action to make the whole system stronger.

Early work on systems strengthening such as that of the Triple S programme helped to articulate a number of distinct institutional levels and functions: service authorities; and service providers. A service authority is the entity legally responsible for WASH services in a defined area. It must ensure the quality of service and the performance of the service provider. In some instances, it may also hold delegated regulatory functions. In most countries with a degree of decentralisation of governance functions, these responsibilities are mandated at the local government level (Lockwood et al, 2017). The service provider is the entity responsible for the day-to-day management of WASH services, including operation and maintenance (O&M) (Huston & Moriarty 2018). See Huston & Moriarty (2018) for a useful glossary of key terms relating to WASH systems.

In addition, a third stakeholder group can be identified: the actual users of WASH infrastructure and services. While both service authority and service provider ensure the long-term provision of WASH services, being a user implies an everyday choice whether or not to use a WASH service or infrastructure – a choice or behaviour that is particular important for the sanitation and hygiene dimension.

Figure 4: The 'building block' conceptual framework for WASH systems often referred to in A4C. Source: A4C website[27]

[26] Water and Sanitation for the Urban Poor (WSUP) sector functionality framework which reflects the realities of WASH service provision in urban contexts

[27] https://www.washagendaforchange.net/sites/default/files/uploads/20180827_agenda_for_change_building_blocks_presentation.pdf

A conceptual framework for analysing the strength of a WASH system has been developed through various initiatives[28], and has been referred to in multiple A4C events[29] and includes eight building blocks (**Figure 4**), which depict 'factors' within the system. As a member of A4C, WHH has adopted this framework for use in the SSI.

The building block concept helps to break down the complex socio-technical WASH system into eight more manageable 'sub-sections' (or building blocks) that should be in place as part of sustainable WASH service delivery. Looking at WASH systems through the lens of these different building blocks (e.g. service delivery infrastructure, monitoring, planning, finance etc.) helps to identify and categorise gaps and systemic weaknesses that may be undermining progress towards sustainability in the WASH sector and helps to identify actions needed to address these weaknesses. The analysis of the status of the building blocks can be undertaken at different institutional levels (Agenda for Change, 2018). In their paper titled 'Beyond building blocks', WaterAid (2019) highlight some of the limitations of building block frameworks (and their utility as analysis and monitoring tools) to represent the more dynamic drivers of a functioning system, and the complex interactions between factors and actors. However, they also acknowledge the use of such building block frameworks particularly in analysing the more 'static' factors of the WASH system.

It is important to mention that the conceptual framework referred to in A4C is just one of several that exist to analyse the status of WASH systems. So far there has been no sector-wide consensus on a common framework or on the number and scope of the building blocks. however, there are many commonalities between the various frameworks. WHH as a member of A4C have adopted the eight building blocks framework often referred to by A4C[30], and it is this framework which this paper analyses for its applicability for sanitation and hygiene. From the conceptual framework, various organisations in A4C (including WHH through the SSI) have developed system diagnostic tools, such as 'building block checklists', which identify what is currently in place and where the gaps are to ensure sustainable service delivery within a specific area of the system.

Different organisations, initiatives and programmes use different frameworks with varying scope and numbers of building blocks. Some organisations focus the application of the building block frameworks at a particular level or boundary (e.g. city or district, or national sector context)[31], or focus on different aspects of WASH (e.g. specifically on urban sanitation, or rural water supply). Without being an exhaustive list, the following are examples of other groups or organisations that use similar conceptual frameworks:

- **Sanitation and Water for All (SWA)** is a global partnership of governments and their development partners to stimulate dialogue and coordinate and monitor progress towards the SDG WASH targets. It has identified five critical building blocks, that the sector must have in place to be able to achieve SDG targets and progressively eliminate inequalities in access: (1) sector policy / strategy, (2) institutional arrangements, (3) sector financing, (4) planning, monitoring and review, and (5) capacity development.[32] In the UNICEF Toolkit for Sector Strengthening, two additional building blocks are referred to in addition to the five core blocks: political leadership, and accountability and regulation.
- **Water and Sanitation for the Urban Poor (WSUP)** developed a framework which reflects the realities of service provision in urban contexts. It consists of two individual, but closely analogous, frameworks for water and sanitation with seven key areas - namely (1) policy / mandates, (2) financial flows, (3) investment planning, (4) capacity, (5) behaviour / attitude, (6) sustainability, and (7) commitment - that allow for sector functionality assessments and provides a framework against which to map sector influence interventions.[33]
- **The Sustainable Sanitation Alliance (SuSanA)** aims to contribute to the achievement of the SDGs by promoting sanitation systems based on principles of sustainability. A sanitation system as outlined by SuSanA encompasses the institutions regulating the system, the organisations and management, the users, the entire technical infrastructure, as well as all services required for the collection, transport, treatment and management of end products of human excreta, wastewater and solid waste. In order to contribute to the sustainability of sanitation systems SuSanA developed five key sustainability criteria including (1) the protection and promotion of human health, (2) economic viability, (3) social acceptability, (4) technical and institutional appropriateness, and (5) the protection of the environment and the natural resource base.[34] The sustainability criteria are not a system strengthening framework per se but include a variety of aspects linked to strengthening long-term sanitation service delivery.

[28] This framework has been developed by various A4C partners over the years (particularly Aguaconsult and IRC), and evolved from various key sector studies such as Triple S[28], World Bank sustainability studies, and others.
[29] Whilst there is not yet a 'formally adopted' A4C conceptual framework, the framework above has been presented under the banner of A4C at various events in recent years. Whilst individual A4C members may have slightly different frameworks, they are broadly similar in scope, content and layout
[30] See https://www.washagendaforchange.net/sites/default/files/uploads/20180827_agenda_for_change_building_blocks_presentation.pdf
[31] Whilst generally acknowledging the vertical linkages between levels in the system
[32] Adapted from SWA: Building Blocks
[33] Adapted from WSUP: Sector Functionality Framework
[34] Adapted from SuSanA: Towards more Sustainable Sanitation Solutions. SuSanA Vision Document

It is important to mention that there are several other WASH system analytical tools and frameworks that have been developed along similar lines. Early examples of such frameworks, which had considerable influence in sector thinking on service sustainability, include the FIETS (financial, institutional, environmental, technological, social) (Waste 2018), WaterAid's Sustainability Framework (WaterAid 2011), the ten building blocks for rural water supply services defined In the Triple-S programme. Other examples of frameworks include the WASH Bottleneck Analysis Tool (WASH-BAT 2018) tool, or the City-Wide Inclusive Sanitation (CWIS) initiative that has developed seven principles (with associated checklists) relating to factors that are important to ensure are in place for inclusive, integrated, accountable and environmentally sustainable sanitation services at city level. In addition, the Sanitation Service Chain[35] and the Shit Flow Diagrams (SFD 2019), provide conceptual guidance and tools that help to represent stages and components of safely managed sanitation service delivery and to analyse and communicate faecal flows along the service chain, which can imply systemic weaknesses, but do not seek to represent or analyse the wider service environment or WASH system.

3. KEY PARTICULARITIES OF SANITATION AND HYGIENE RELEVANT FOR SYSTEMS THINKING

The following section compiles some of the key differences and particularities of sanitation and hygiene as compared to water supply, which are important to acknowledge when applying WASH systems concepts or related conceptual frameworks, particularly if such frameworks have been developed from an initial bias towards (rural) water service delivery. Whilst many aspects of a WASH system and pre-requisite conditions for a 'functioning' system are equally applicable across all three of the water, sanitation and hygiene sub-sectors, there are key characteristics of sanitation and hygiene that require additional consideration to ensure systems conceptualisation, analysis and strengthening efforts can be successfully applied.

Lower demand / priority for sanitation and hygiene: Compared to water supply, where the immediate need and importance of providing access to clean water is more obvious and the willingness to invest and pay for such services is higher[36], sanitation and hygiene still suffers from a lack of awareness, an 'unattractive' image and existing taboos for individuals, communities and in some cases government institutions. There is often a lack of awareness of the immediate consequences of poor sanitation and hygiene for individuals or households and political decision maker-levels, resulting in a lower uptake, lower willingness to pay and often insufficient political will to plan and invest in sanitation and hygiene interventions. Hence, the element of user demand and political will is of particular importance for sanitation and hygiene.

Public vs. private good and corresponding responsibilities: Water supply is usually considered as a public good with public infrastructure and services designed to serve the wider community, where the responsibility for planning, financing and provision of service lies with the service authorities (e.g. local governments) and dedicated service providers. The notable exception to this is self-supply for water, where the responsibility for planning and financing for water services stays with individual household or users. Similarly, for sanitation and hygiene, particularly in rural contexts, despite service authorities being the duty bearer for access to sanitation as a human right, the responsibility for construction and ultimately the management and maintenance of toilet facilities is often partly or entirely shifted to individuals or households. In urban settings the foci for sanitation starts to shift towards a more public service and mandate, even where this may be delivered by private sector utilities or small-scale providers, e.g. networked piped sewerage or faecal sludge management (FSM) models. However, in many contexts where WHH works, even in urban settings, sanitation is often left as a defacto private responsibility. Hence a framework for sustaining a public water service is quite different to one which encourages) household responsibility for financing, construction (or contracting) and operation. In this, Huston & Moriarty (2018) highlight the general difference in service delivery models between public water supply, and sanitation services (particularly for rural contexts). System-strengthening efforts should therefore not only focus on the public sphere, but also consider strengthening the necessary private sector-driven market systems, together with household and individual demand and access to information.

Boundaries of responsibilities: Following from the point above, the end of the responsibility line for sanitation is often less clearly defined: while water supply usually functions 'top-down' with the final aim of clean water at user level, sanitation starts "with the bottom-up" (or the user respectively) and has a harder to define end-point. Rural sanitation efforts are often limited to constructing toilets and digging pits without looking at the subsequent sanitation service chain and corresponding responsibilities.

Definitions of 'service' and 'service provider'. As mentioned, whilst for public water supply, the responsibility for daily operation and management generally falls on an external service provider, whilst for sanitation, the

[35] See https://simavi.org/wp-content/uploads/2015/03/150317_7300037_Factsheet_Simavi_Sustainable-Sanitation.pdf

[36] Although even water supplies suffer challenges to ensure user demand and usage of services, particularly in rural areas and/or where alternative, albeit unimproved water sources are available.

responsibility for construction and daily management Is that of the household[37]. In this, the general sector definition of the term 'service provider' may need to be further considered, to factor in the role of households in service provision. Whilst the concepts of service and service levels are relatively well known and accepted for water supply and sanitation, the WASH Cost programme (IRC 2011) found it more challenging to define a hygiene 'service', with it proposing that the 'service' is the ongoing promotion of hygiene to households. Others may consider a hygiene service to relate more to the facility which a user accesses, such as a handwashing facility with soap. Therefore, the definitions of 'service' may be more difficult to define, not consistent across the sector, and if one were to take 'hygiene promotion' as the service, the concept of what a service is, and what service levels are, becomes more challenging to conceptualise than for water or sanitation.

To further emphasise the point of differing roles and responsibilities in stakeholder groups and between WASH elements, **Table 1** provides a simplified example of differing roles of stakeholders between Service Authorities (SAs), Service Providers (SPs), and Households (HHs). It also highlights the distinction between public service providers, and 'market-based' service providers (MB-SP) who provide a private service to individual households. Whilst the examples are simplified, generic and will vary by context, the table helps to highlight the key differences between a public water service and private sanitation 'service', and the similarities between domestic sanitation and self-supply, and also similarities between public water supply and public sanitation services (e.g. sewerage services). The example of sanitation where there are elements of the FSM service chain is included, indicating sanitation roles and responsibilities as sitting somewhere between household and public service provision examples.

Sub-Sector (Service Type)	**Demand Creation**	**CapEx & CapManEx**	**OpEx**	**O&M** (daily upkeep)	**Regulation & Enforcement**	**Monitoring**
Water Supply (Public)	SA, SP	SA, SP	SP (tariffs)	SP	SA	SA, SP
Water Supply (Self-Supply)	MB-SP	HH	HH	HH	SA (unclear) and market forces	SA, SP
Sanitation (Sewerage)	SA, SP	SA, SP	SP (tariffs)	SP	SA	SA, SP
Sanitation (HH toilets & contracted emptying services)	MB-SP	HH, MB-SP (for emptying) SA (for public FSM infra)	HH, MB-SP (tariffs)	HH	SA	SA, SP
Rural Sanitation (Assuming no / limited emptying requirements)	SA, MB-SP	HH	HH	HH	SA (more focus on ODF than service chain)	SA, SP
Domestic & Personal Hygiene*	SA, MB-SP	HH	HH	HH	N/A	(SA)

Table 1: Example roles and responsibilities of stakeholder groups between different WASH elements

*Note: The service being described is that of the ongoing availability of a handwashing or personal hygiene service, rather than 'hygiene promotion' as a service, as suggested by IRC (2011).

Actors: Whilst drinking water supply is usually clearly assigned to one ministry or local authority department, mandates for sanitation and hygiene can be more fragmented and spread across a number of different institutional 'homes'[38]. This fragmentation often confuses responsibilities and requires special coordination between the different service authorities from national down to district / local level. In countries where there is not a 'WASH' ministry, there can often be a nominated 'WASH sector lead', which often goes to the ministry responsible for water, sometimes causing marginalisation of Environmental Health entities in the Health Ministries, inter-ministerial conflicts, or blurred mandates. Hygiene can hardly be seen as a stand-alone topic and is usually an integral part of water and sanitation service delivery interventions. Hygiene may also be captured under health promotion programmes that fall outside of the WASH sector, and hence may pose challenges to WASH sector-specific strengthening or planning efforts. Indeed, WaterAid (2018) highlight the

[37] IRC (2011) states that the concept of a sanitation service does not necessarily imply an external service provider, but rather households take much of the role to ensure the service.

[38] E.g. Department of Health, sometimes the Water Department, sometimes in a separate Sanitation Department, WASH in schools usually under the Education Department or can be a hybrid, environmental regulation by Environment Protection Agency, etc

criticality of cross-sectoral integration when considering hygiene from a systems perspective. All of this may result in the distribution of responsibilities not being sufficiently clear, and requiring substantial additional coordination efforts, for example, to align planning cycles of different departments or ministries and to ensure consolidated and coordinated 'WASH sector' planning.

Terminology: The terms 'sanitation' and 'hygiene' are used differently by different people and organisations, and in different circumstances (also due to slightly different meanings in different languages and country contexts). In the SDGs there is a semantic separation between sanitation (target 6.2) and wastewater management (target 6.3) (SuSanA 2017). Sanitation is often associated with improved toilet access only (basic sanitation), particularly in rural contexts. However, it may also include the consideration of the entire sanitation service chain including FSM and sewer networks, especially in more densely populated rural areas, small towns or urban areas (safely managed sanitation). It may also be used to refer to solid waste management, storm water management, drainage measures and behavioural aspects. Hygiene does not only include handwashing with soap at critical times (as the primary hygiene indicator in SDG target 6.2) but a wider set of behaviours covering toilet use, menstrual hygiene management, point-of-use household water storage, food hygiene and animal excreta management among others. Highlighting those sanitation and hygiene elements more explicitly in the building blocks and system strengthening approach may help to increase overall awareness and ensure that they are more strongly considered in system strengthening efforts. When conceptualising and analysing the system, it is important that all stakeholders are clear on where the boundaries lie in terms of what is counted 'within' and outside the WASH system, and hence what is captured in the efforts and planning of the WASH sector. This may require national level dialogue and consensus building.

Hygiene promotion vs. behaviour change: There is still a tendency that hygiene interventions too often focus on attaining rather than sustaining behaviours[39] which may affect long-term functioning and use of WASH services. Whilst the distinction between achieving and sustaining access is valid for both water and sanitation, it is widely acknowledged that behaviour change takes a long time and therefore raises the need to consider recurrent reinforcing of behaviour change messages over a sustained period (the prevalence of significant 'slippage' from ODF status is a clear case in point). WaterAid (2018) highlights the need for behavior change communication, which is ongoing, informed by formative research, and adapted through close monitoring, to be considered as key factors when looking at hygiene from a systems perspective.

4. PROPOSED MODIFICATIONS TO THE OVERALL CONCEPTUAL FRAMEWORK

The preceding chapter has outlined some of the rationale for the modifications or evolutions that are proposed for the conceptual framework. This and subsequent chapters investigate the detail of individual building blocks. The overall proposed changes to the framework that helps to describe a WASH system are highlighted in red in **Figure 5** and described in more detail below.

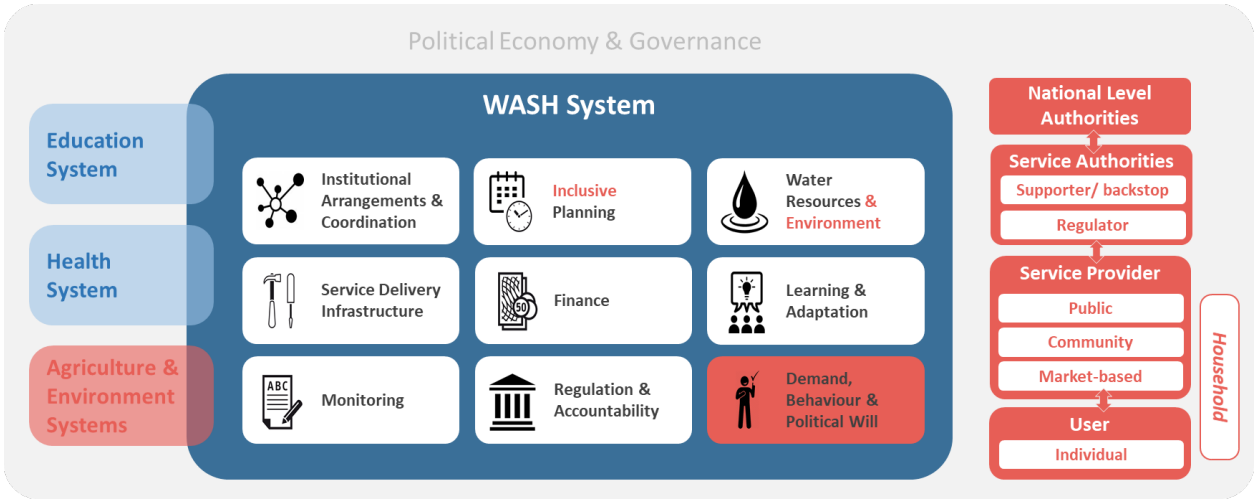

Figure 5: Suggestion for the Further Development of the Conceptual Framework (suggested changes in red). Source: Authors

[39] Due to a variety of reasons including an over-emphasis on hardware-driven first-time access to WASH infrastructure, insufficient knowledge and lack of evidence of functioning longer-term hygiene and behavior change approaches, or the constraints of donor-funded programming, among others

BUILDING BLOCK 'FACTORS'

To add a complementary ninth building block entitled "Demand, Behaviour and Political Will" to emphasise socio-cultural aspects of user behaviour and behaviour change, demand, and political will (within the WASH system). Whilst these are implicit to certain existing building blocks, given the importance of these aspects for sanitation and hygiene, a much more explicit recognition is proposed. Whilst political economy remains within the broader country context, adding political will (within the WASH system) into the ninth building block allows this dynamic and important driver of sector performance more centrally within the framework[40]. The rationale for this is that in the SSI experience, more focus is placed on analysing and strengthening elements that are presented in the building blocks, whilst 'cross-cutting' factors such as political economy may not be systematically considered or analysed. This is in part, because sector toolkits being developed around building blocks, and analytical checklists (and associated monitoring mechanisms) tend to focus on the building blocks, sometimes omitting the cross-cutting factors. In short, creating a specific building block with a focus on these elements increases the chance they are actively analysed, strengthened and monitored. It is also assumed that this same logic applies for all sub-sectors of WASH. Indeed, other sector frameworks already reflect some of the elements of the proposed ninth building block, such as the WSUP Sector Functionality Framework, which captures 'behaviours, attitudes and commitment', and the SWA includes two 'additional building blocks' to their core five blocks, one of which is titled 'Political Leadership'. In publications by WaterAid in 2018 and 2019 respectively, they argue for the inclusion of behaviour and behaviour change within building blocks to represent hygiene better in systems thinking; and also to ensure important drivers of sector performance, such as political dynamics, are included in systems analysis. WaterAid's 'ingredients for a strong WASH system' includes building blocks that include behaviour change (WaterAid 2019).

To rename the 'Water Resources Management' building block as 'Water Resources and Environment'. The A4C framework focusses on water resources, which is reflective of the water bias of the framework to date. It is proposed to include 'and Environment' to the title of the building block, to better reflect the environmental health element and sanitation related issues that come along with it. It also helps to capture the aspect of ecological sanitation, and the 'closing the sanitation loop' agenda.

To capture Gender, Equity & Social Inclusion (GESI) issues in the framework: Wateraid's 'ingredients of a strong WASH system' specifically consider GESI, presenting it as a unique building block. GESI is a key issue both across all three dimensions of WASH, and it is proposed that the A4C framework should be evolved to explicitly capture GESI in its frameworks, captured in the modification here as the addition of 'Inclusive' into the 'Planning' building block (whilst acknowledging it is an issue that is relevant in other building blocks).

ACTORS & LEVELS

To explicitly include the institutional 'levels' in the conceptual framework and highlighting different types of service providers[41]. The right-hand column has been added to more clearly represent the 'actors' in the graphic of the system, particularly the different government levels and to disaggregate service providers into different groups, to allow e.g. 'market based' service providers to be explicitly mentioned as they are key in sanitation and hygiene [42]. The revised framework also highlights the need to better allocate the role of the household, either as a service provider or user. Including users, and highlighting the role of households in service provision, increases awareness of the need to address all these actors groups as part of WASH system strengthening efforts and reflects the reality that, particularly for sanitation and hygiene (similarly with water self-supply), the responsibility often lies with the individual households and users.

MORE EXPLICIT INTERFACE WITH OTHER SECTORAL SYSTEMS

To include reference to agriculture and environment sectors, to highlight the linkages between WASH and these sectors, particularly regarding the 'closing the sanitation loop' agenda. This is equally relevant for water and sanitation.

[40] It is hoped that this can address, to an extent, some of the weaknesses identified by WaterAid (2019) in building block frameworks of not capturing such dynamic drivers of systems.

[41] Whilst systems thinking and certain frameworks have considered the different 'levels' in the system and their interactions between them, the A4C framework graphic did not include this aspect of the WASH system.

[42] Whilst market-based service providers are also playing an ever-important role in operation, maintenance and management of water supply services, they are critical in sanitation and hygiene

Figure 6: Overview of the SSI WASH Conceptual Framework (including the suggested changes). Source: Authors

5. MODIFICATIONS TO SUB-FACTORS BEHIND EACH BUILDING BLOCK

Behind many of the conceptual frameworks in the sector that use building blocks, there are 'indicators' or 'sub-factors' as to what 'should' be in place for a functioning WASH system (WaterAid 2019). Again, these vary based on the 'boundary' at which the framework focuses on - for example the indicators behind the five SWA building blocks are focussed largely on national-level enabling environment issues. To date, the WASH systems conceptual framework often referred to in A4C does not feature a commonly agreed set of sub-factors or indicators for each building block. In short, beyond the building block titles, there is no definitive list of what each building block includes, although member organisations of A4C who are employing (versions) of this framework do have such detailed indicators, which vary between each organisation. This makes an assessment and analysis of the building blocks in terms of their applicability to sanitation and hygiene a more challenging task. This chapter therefore presents a compilation of sub-factors and indicators from two key sources:

- The initial SSI building block checklist, which was developed in January 2018, and was meant to capture all aspects of WASH (although arguably had a water bias). It was developed for application primarily at the service authority-community level, rather than for sector level analysis.
- The list of sub-factors presented in Huston & Moriarty (2018), which detail IRC's nine building blocks (which are similar to the A4C framework)[43], and the sub-factors which are important to have in place behind each, and the interactions between building blocks. This list also considers the wider national level context.

In the process of developing this paper, a list of sub-factors was selected from the resources above and reviewed to see if they adequately represent sanitation and hygiene. Proposed additions and modifications to the list of sub-factors per building block are represented in the tables in the following sub-sections of this paper.

Figure 7: An overview of the proposed building blocks, with detail on the sub-factors

[43] The 9 blocks include: Policy & Legislation; Institutions; Infrastructure; Monitoring; Planning; Finance; Regulation & Accountability; Water Resources Management; Learning & Adaptation.

These lists of sub-factors (see **Figure 7**) essentially capture aspects which theoretically should be in place, for a building block to function, at least to a 'good enough' level, and which in turn contribute along with the other building blocks to a WASH system that can enable sustainable services at scale. They are generic in nature and would need to be customised to specific contexts and are based on WHH's programming experience which is predominately in rural areas, however low-income urban contexts are also reflected in part. These can be used as a checklist to help practitioners such as WHH programme staff (and partner government entities) to analyse the extent to which sub-factors are in place, which can in turn help to identify potential priorities for strengthening any given building block within the broader WASH system. They can also be used as a rudimentary tool to track change within the system, particularly relating to more 'static' factors of the WASH system[44].

The following sub-sections present the list of sub-factors which should be in place per building block, if WASH services are to be sustainable at scale. Initial factors captured in the SSI checklist and Huston & Moriarty (2018) are summarised and presented in black font, whilst adaptations and additions to better factor in sanitation and hygiene are presented in **pink** font. Notes to explain or justify modifications are highlighted with a symbol (★).

[44] However, the SSI acknowledges the limitations and risks raised by WaterAid (2019) of using building block frameworks and their indicators for systems analysis and particularly for monitoring systems change. The checklist presented in this paper aims to address some of the recommendations of WaterAid's 'Beyond building blocks' paper, for example: in focussing on 'function rather than form'; in expanding the list of indicators (and allowing additional indicators to be added through time (as is currently being done in the SSI); in aiming to capture aspects of political commitment into the analysis framework; and in trying to highlight inter-system linkages, at least between sectors. However, the SSI does acknowledge the limitations of such building block indicators to adequately represent more dynamic factors such as complex interconnectivities and relationships within the WASH system.

Mandates and Roles

Clear institutional mandates and responsibilities in place for financing and undertaking repair, replacement, expansion, monitoring, planning, post ODF monitoring / enforcement / retriggering, within the job descriptions and work plan / recurrent budgets of permanent personnel.

Service authority and service provider are motivated / incentivised to perform in their roles and incentives for ongoing promotion, monitoring and enforcement of water, sanitation and hygiene policies are in place.

Coordination

Clear WASH sector policy, legal frameworks and standards are in place and bylaws exist for local-level enforcement.

National and sub-national coordination platforms in place to support involvement, participation, exchange, coordination and decision making among all WASH sector stakeholders.

Inter-agency and intersectoral coordination is effective, ensuring harmonised approaches and clearly defined mandates of actors, in the event that WASH cuts across service authority, ministry or sectoral mandates.

★ In many country contexts, some or all of the three WASH sub-sector dimensions may be administered by different service authorities with different institutional mandates and responsibilities in place for sanitation and hygiene compared to water. Hence it is key to establish adequate structures and a harmonised approach for coordination and planning between different responsible departments to support exchange, involvement and joint decision making among all stakeholders. This needs to be factored into all WASH systems strengthening efforts. It may also include coordination and harmonisation with adjacent sectors (e.g. health), to avoid a fragmented health approach and to align hygiene promotion and behaviour change efforts in both sectors.

Institutional Capacity

Service provider in place with technical and administrative capacity to manage water supply and sanitation services on a daily basis.

Service authority has adequate capacity to fulfil its role in ongoing support, monitoring, planning, budgeting, for WASH services including hygiene promotion and behaviour change interventions (capacity including personnel, resources, skills and training).

Ongoing support, guidance and training provided from national / regional bodies to service authority and service provider in place, and both entities have sufficient WASH knowledge and expertise regarding adequate water supply, sanitation and FSM options, hygiene promotion and behaviour change measures.

Status of Service Providers

Service providers for water and sanitation services are legally registered and have a platform for dialogue and representation at service authority (and national where applicable) levels

★ Legal registration of service providers allows them to be formally contracted and delegated to undertake services, to take loans and be held accountable. Whilst this indicator is equally valid for water and sanitation service providers, it is particularly important to emphasise for sanitation as many FSM service providers are often informal, lack frameworks to legally operate within a particular locality and may suffer from 'power imbalances' with city authorities and regulators. Associating service providers or providing mechanisms and platforms for dialogue on sanitation issues between the service authorities and service providers can be useful.

2 Service Delivery Infrastructure

Design & Construction

Access to (affordable) quality products and spare parts in place for water, sanitation (the whole service chain), handwashing and hygiene items, which may include market-based approaches for more affordable products.

★ Although the aspect of having access to quality products and spare parts may implicitly include all three WASH dimensions, it is recommended to explicitly mention spare parts and supply chains for sanitation facilities (incl. entire sanitation service chain), as well as for handwashing facilities and hygiene items here, in order to avoid a one-sided focus on water supply aspects only.

Initial design and construction quality are ensured through transparent monitoring, guidance to service provider / market-based stakeholders / households, enforced technical standards, and robust procurement and contract management.

★ Responsibility for sanitation infrastructure construction is often shifted to households or communities, who may also use market-based actors such as masons for the construction. Support may be needed to advise households how to decide on the most appropriate solution also considering longer-term O&M requirements (informed choice) and how to construct toilets that are long-lasting and durable.

Water, sanitation and hygiene facilities are appropriate to context and meet the needs and priority of users (incl. inclusive design considerations).

★ WASH interventions have to take context, needs and priorities of users into account. This is particularly the case for sanitation and hygiene as they are usually more strongly related to culture, existing habits, behaviours or potential taboos. While people may be willing (at least temporarily) to accept less culturally adapted solutions relating to water as it is critical for survival, for sanitation and hygiene people have the choice whether they accept and use facilities and adopt hygiene behaviours or not. Hence, service authorities and providers have to take this into account and carefully assess the socio-cultural context, identify locally appropriate and acceptable solutions together with the users and identify whether longer-term behaviour change measures may be required. In addition, WASH interventions, particularly in more urbanised contexts, may have to consider locally adapted FSM solutions.

Maintenance

Access to quality post-construction maintenance services ensured for water supply and sanitation (including maintenance services for the whole sanitation service chain, where applicable) that are affordable and of adequate quality.

★ Post-construction maintenance, particularly in more urbanised contexts may also include FSM and, where applicable, emptying service providers and adequately managed treatment facilities that have to be in place and that are properly regulated.

Service providers plan and budget for preventative / proactive maintenance and replacement of water and sanitation facilities (including the whole sanitation service chain) rather than 'fix on failures' (reactive maintenance).

Updated infrastructure inventory monitoring in place and used by service authority to plan and prioritise maintenance and investments (including public or communal water supply and sanitation infrastructure).

★ Under the SSI programme, WHH has assisted service authorities to develop asset inventories for water supply, in part to help to strengthen asset management practices of the authority. Whilst inventorying every domestic sanitation facility in the service authority's area of influence is often impractical (and is of less relevance for the service authority given that such assets are privately owned), it is important that asset monitoring includes public sanitation assets, where they exist (e.g. sewerage and FSM infrastructure, public toilets, etc).

Technical Standards

Technical standards and examples are available to guide households and contractors to select / built locally appropriate and durable water supply and sanitation (including. whole sanitation service chain, where applicable) facilities.

Legal Framework and Enforcement

Clear legislative framework in place at various levels for enforcement of sector policy, regulating service providers (water and sanitation and FSM), and standards with clear enforcement and accountability protocols.

★ Whilst implicit in the wording, the addition has been made to ensure consideration of the wider service FSM service chain, as in many contexts, legal arrangements and service standards governing FSM are not always fully established.

Functioning enforcement of appropriate regulations, service standards and social norms is ensured, and defaulters (such as service providers and users / households) are held accountable on a continuous basis.

★ Whilst with water supply this would include user defaulters (e.g. non-payment of tariffs, vandalism or water theft), for sanitation this would include households (and landlords) whose sanitary facilities do not meet minimum requirements or cause public health issues, or are located too close to water sources, or individuals that open defecate – items which should be captured through sanitary inspection and enforcement. It would also include the monitoring and enforcement of service standards across the sanitation service chain, for example relating to informal sludge dumping, sludge handling and treatment, and the upkeep of public toilets.

Accountability

Accountability mechanisms of service authority activities / services in place and where applicable of their finances, to service users.

Effective mechanisms in place for users to complain to service provider or service authority about poor service delivery, excessive tariffs or environmental pollution.

Service providers are registered with and monitored by the relevant service authority, and report regularly to them on the status of WASH service provision.

★ Mandates for regulation of different elements of the sanitation service chain may be distributed across multiple institutions, such as environmental protection agencies, environmental health departments, and city councils, therefore it is important to ensure all relevant entities are included in efforts to improve accountability.

Mutual accountability of WASH organisations to service authority and vice versa, which implies working together to establish jointly agreed frameworks that provide reliable assessments of performance, transparency and accountability of systems and procedures.

Participation

Users are consulted in the planning process and are involved in decision-making to ensure infrastructure is designed based on local preferences and willingness / ability to pay.

Planning for WASH services at service authority level is participatory, accountable and effectively coordinated with NGOs, higher levels of government, community representatives; stakeholders and users are involved in decision making.

Inclusive Planning

Service authority has an updated plan to achieve and sustain universal WASH services, which considers ongoing support, lifecycle costs and recurrent costs, and all stakeholders operating in district follow and report-to this plan. The plan includes not only sustaining infrastructure but also sustaining social norms and behavior change and includes all components of sanitation (including the wider sanitation service chain).

★ Although a WASH plan implicitly includes all three WASH dimensions, modifications are proposed to avoid any potential biases towards water supply. It is the SSI experience that such plans can often focus on water and toilet access, and less on ensuring sustained usage of facilities or sustained behaviour change, nor on the wider sanitation service chain (to lead towards safely managed services). These elements are hence explicitly mentioned in the proposed edits.

Planning and budgeting by service authority is based on monitoring data and connected with national / local planning and budgeting with the aim of full coverage and sustainable WASH service delivery (reaching everyone forever).

Diversity of needs of different user groups are accounted for in policy, guidelines and planning and plans include specific measures to ensure gender, equity and inclusion issues.

★ The aspect of 'gender, equity and inclusion' has not been mentioned explicitly in the building blocks and as a cross-cutting issue, it is often not given adequate attention in planning or broader systems analysis. An inclusive and equitable (or universal) design approach aims to identify and remove potential barriers and create WASH facilities and environments that can be used by everyone, irrespective of age, wealth, gender, disease, religion, ethnicity or disability. All potential user groups need to be adequately considered in policy, regulation, planning and design so that facilities are built, and services are developed from the perspective of the persons concerned (Gensch et al 2018).

Resilience

Planning by service authority / service providers includes WASH disaster risk reduction (DRR) and resilience strategies (if relevant in local context) to reduce potential impact of hazard events on WASH services, to ensure rapid service level and structural recovery of WASH services after hazard events.

Budgeting and Financing

Clarity and commitment among stakeholders regarding responsibility for financing cost components (including full O&M costs, regular monitoring, post ODF monitoring and ongoing reinforcement of behaviour change messaging, and subsidies in the sanitation service chain (where needed).

★ Having clarity / commitment among all stakeholders about who covers each cost component is crucial to sustainable WASH services. It is recommended that critical aspects, which often tend to be neglected are explicitly mentioned.

Service authorities are budgeting for and adequately allocating funds for direct support costs, capital maintenance support (for water and sanitation public infrastructure), on-going sanitary monitoring and enforcement and behavior change activities, and targeted subsidies in the sanitation service chain where needed.

★ The requirement of service authorities to allocate adequate financing for direct support costs and capital maintenance is appropriate for both water and sanitation, although the responsibility of the authorities for capital / capital maintenance investments will generally focus on communal assets (including FSM assets such as transfer tanks and treatment works), rather than domestic toilets – the latter generally being the household's responsibilities. Ongoing follow-up and reinforcement of sanitary standards and hygiene behaviours is a common gap in many countries; hence these aspects have been explicitly added.

Where applicable, costs of each component of the sanitation service chain are financed from sustainable sources.

★ Whilst user investments and tariffs may cover aspects such as toilet construction and emptying, they may not be adequate to cover full costs of transport and safe treatment of sludge. As such, this indicator is proposed to ensure sustainable financing sources throughout the value chain are considered, which may lead to discussions on targeted subsidies and consideration of potential revenue streams from products which can be derived from treated sludge.

Revenue Collection

Tariff rates are equitable, and adequate to meet full O&M costs and enable a reserve for capital maintenance and expansion. Where applicable tariffs include cross-subsidies or aspects which cater for the wider sanitation service chain and for vulnerable households.

★ In most cases it may not be possible to charge for full operation and maintenance costs of sanitation service provision (particularly FSM) through a separate sanitation tariff as the user's willingness or ability to pay may be limited. An alternative option, however, is to include a cost recovery component for sanitation services as part of the water tariff (e.g. in many countries wastewater bills are covered via water fees) as the willingness to pay for water is usually higher.

Revenue collection rates are high, and sanctions are in place for non-payment.

Financing Mechanisms

Service authority, service provider and households have access to affordable financing mechanisms for water and sanitation infrastructure, goods and services, where needed, to help overcome potential capital and capital maintenance expenditures and allow for continuous improvement of levels of service.

★ Whilst financing mechanisms are relevant for all of WASH dimensions, given that sanitation and hygiene are often considered private goods, there is a need to ensure that financing mechanisms are available (where needed) to help households to make capital investments for sanitation and hygiene products and services (e.g. access to loans or other forms of affordable credit lines), and to help market-based service providers (such as FSM operators) to access affordable finance, to procure assets such as vacuum trucks and other capital-Intensive Items.

6 Monitoring

Data Collection

Regular monitoring and respective protocols are in place in the service authority to track functional status and service levels for water (including water quality) and sanitation services, enforcement of sanitary standards, and the persistence of key sanitation hygiene behaviours and social norms. Monitoring data feeds into national datasets, and monitoring leads to corrective measures being taken.

★ Regular monitoring and existing protocols at national and local level may implicitly include all three WASH dimensions, however, it is recommended to explicitly mention specific sanitation and hygiene related aspects such as regular monitoring of functional status and service levels of sanitation infrastructure and key hygiene behaviours, in order to avoid a 'water bias' in monitoring systems. Post ODF monitoring and monitoring of FSM services is a common weakness in many WASH sector monitoring frameworks and is specifically highlighted.

Monitoring of spare parts quality and infrastructural works (construction, repair, upgrading) is in place to ensure quality of infrastructure.

WASH organisations operating in the service authority's area (e.g. in the district) all use harmonised monitoring indicators and provide monitoring data to the service authority.

Data Analysis

Monitoring data is effectively analysed, learned from and continuously informs and feeds into planning and budgeting at service authority level.

Monitoring Capacity

Adequate capacity for monitoring by service authority in place (including skills, protocols, data management and resources).

Resource Management and Efficiency

Service provider and/or service authority develop and expand water and sanitation infrastructure, considering water resource availability and variability, based on projected water demands (including for multiple uses such as agriculture and small-scale industries).

Water yields, quality, quantity and FSM waste or sewerage treatment effluents are monitored at the time of construction and on an ongoing basis.

Service provider and service authorities have capacity and knowledge on how to preserve surface and groundwater quality and quantity, and are implementing measures to action this (e.g. catchment protection, water safety planning, sanitation safety planning, mapping of health risks, sludge or wastewater treatment, safe disposal or reuse, hygiene promotion and behaviour change measures).

★ Surface and groundwater preservation are strongly related to sanitation and hygiene aspects. It is therefore recommended to give concrete examples of implementing measures, as listed above.

Resource recovery and use of sanitation products (e.g. treated wastewater, urine, faecal sludge) has been taken into consideration, where applicable and (culturally) acceptable, for irrigation, fertilisation, soil conditioning and as an energy source.

Balancing of Interests

Service providers and users are able to participate in multi-stakeholder forums for water resources allocation and problem solving, including forums to hold polluters to account.

★ This edit allows the linkage between sanitation influences on water resources to be better highlighted, for example holding service providers (and service authorities where applicable) accountable for indiscriminate sludge disposal into water courses.

Drinking water is given priority in water resource planning and policy.

Learning

Exchange platform(s) exist at service authority and national levels, where stakeholders can openly share experiences, challenges and lessons on WASH activities.

★ In WHH experience, in some countries, challenging the effectiveness of sanitation approaches (for example, CLTS) has been difficult due in part to donor and policy dynamics. Having learning platforms where organisations can freely share both successes and failures, can allow for progressive refinement and customisation of approaches to ensure maximum effectiveness and sustainability in the given context is important. In addition, in some countries, FSM may be a relatively new topic for WASH sector actors, and there is a need for active coordination and learning to ensure experiences are learned from, and actors are not 'reinventing the wheel'.

Learning information and knowledge flows from national to district-level learning platforms, and vice versa.

Adaptation

Learning activities are linked to monitoring and planning, and lead to adaptation of plans, approaches and activities.

Tailored capacity development activities are available on an ongoing basis based on identified needs / demand. for service authority, service provider, and community-based structures.

Attitude, Behaviour and Social Norms

★ This sub-factor places emphasis on WASH related practices, user behaviours, behavioural determinants, taboos and cultural characteristics that need to be assessed. This applies to all three WASH dimensions but is of particular importance for sanitation and hygiene. In addition, arrangements for establishing and constantly reinforcing respective WASH related social norms and sanitation and hygiene behaviours need to be considered, depending on existing societal awareness. These factors are also emphasised by WaterAid (2018) when proposing factors which need to be considered to better represent hygiene in WASH systems thinking.

WASH related practices, behaviours, behavioural determinants, taboos and cultural characteristics are assessed, monitored and findings are used (on a continuous basis) to inform and refine approaches and strategies to behaviour change.

WASH related social norms exist and are durable (for example relating to open defecation, handwashing, informal sludge dumping and environmental pollution, payment for and not vandalising of water services), and adequate ongoing hygiene and sanitation behaviour change measures are included in WASH plans, depending on existing societal WASH awareness.

Service authorities, service providers and users comply to social norms, and measures are in place for enforcement and sanctions of defaulters (e.g. on issues of OD, vandalism of public WASH assets, paying of tariffs / bills, water wastage, informal sludge discharge, water theft, corruption etc.)

Demand and Political Will

★ This sub-factor considers user demand and willingness to invest time and resources into (safe) WASH services. This commitment is of particular importance for sanitation and hygiene, where demand often has to be triggered and ideally then reinforced over a sustained period. Regarding FSM (e.g. toilet emptying) services, the importance of demand and willingness for safe and hygienic services is key. It also considers the political will of service authorities and national governments to adequately prioritise, plan and budget for WASH services, including for sanitation and hygiene interventions. As with user demand, this political commitment itself often needs to be triggered and reinforced over time. In the SSI experience, whilst political will may exist or relatively easy to trigger in terms of increasing first-time water supply and toilet access, there may be less awareness or commitment on ensuring the on-going quality of WASH services (e.g. service levels), consideration of wider sanitation service chains, or ensuring access is not only increased, but sustained. Clear political commitment for WASH services for all cannot be assumed, particularly in contexts where equity and marginalisation are challenges.

User demand for safe and improved water and sanitations services and relevant hygiene products is widespread, and users are willing to pay for such infrastructure or services (provided they deliver adequate levels of service) and for relevant hygiene products (e.g. soap for handwashing).

There is clear political will for sanitation and hygiene, considering the whole sanitation service chain (where applicable) and this is reflected in national government and service authority's plans and (ongoing) budget allocations.

Political leaders with responsibility for WASH have sufficient power to ensure a concerted drive to support and facilitate improvements[45].

There is clear political will not only to increase first time WASH access, but to sustain and ensure an adequate level of quality of service for all. This is reflected in the plans, strategies, activities and ongoing budget allocations of national government and service authorities.

[45] This indicator is taken from the suggested indicators listed in UNICEF (2016) toolkit for sector strengthening.

6. EXAMPLES TO STRENGTHEN THE WASH SYSTEM FOCUSSED ON SANITATION AND HYGIENE

Section 5 proposes a 'checklist' of sub-factors which should ideally be in place within each of the nine building blocks to support sustainable WASH services at scale. Checklists such as this are used by the SSI (and other organisations), to analyse the status of the building blocks within a particular area, for example a district or town. The scoring of such checklists is often undertaken in a participatory manner (e.g. in a workshop group work exercise), bringing together stakeholders such as the service authorities, service providers, WASH-related NGOs operating in the area, and members of civil society. Working together to review and apply checklist tools and working through the scoring process can help to orientate workshop participants to new concepts and the overall idea of considering a WASH system, beyond only the physical infrastructure in front of them (i.e. the 'taps and toilets'). Analysis of the results of the scoring exercises and facilitated discussions are then a useful means of collectively identifying weaknesses in the system and can stimulate discussions on how to address the issues that have been highlighted[46].

In **Figure 8** below, some examples are provided of how organisations such as WHH[47] could work with and support national and local government, market-based players, and others in the sector to strengthen aspects of the WASH system. These examples are specific to sanitation and hygiene and are generic in nature; the examples provided are by no means exhaustive, nor would they all be applicable or relevant in all contexts. Further work is envisaged under the SSI to produce additional guidance to WHH country teams for strengthening sanitation and hygiene aspects of the WASH system, and it is hoped that this paper will also stimulate further documentation on the topic by other organisations.

[46] The SSI acknowledges some of the limitations of using the building block checklist as an analytical tool, and particularly as a monitoring tool, as outlined in WaterAid's 'Beyond building blocks' paper (WaterAid 2019). The checklist in this paper (herein) aims to navigate round some of the identified limitations, to the extent possible whilst still using a building block tool as the main 'systems' analytical tool used by the SSI at this stage.

[47] The examples have been written from the perspective of an external organisation such as an INGO wishing to strengthen the WASH system in a particular country/district/city. It is clear that many of the suggested actions would require multi-stakeholder efforts, and not all actions would be within the mandate or skillset of an INGO.

Examples of Sanitation and Hygiene Focussed Systems Strengthening Across the Building Blocks

1

- Undertake a building block and institutional analysis, and develop joint plans to address areas of weaknesses
- Ensure roles and responsibilities for S&H aspects are clear for all stakeholders, and analyse capacity to fulfil mandates
- Strengthen coordination and joint planning between entities working on elements of WASH
- Strengthen capacities of market-based service providers (e.g. FSM actors, masons)
- Legally formalise, and professionalise FSM service providers

2

- Pilot and refine service delivery models and appropriate technologies for sanitation services
- Ensure ongoing availability of technical guidance for construction of domestic sanitation and hygiene facilities
- Encourage investment in FSM enabling infrastructure
- Encourage market-based players to provide (quality) sanitation and hygiene products, and FSM equipment

3

- Support the establishment or operationalisation around service standards across entire sanitation service chain
- Ensure mandates for regulation in S&H are clear and efficiently coordinated
- Encourage market-based 'internal' regulation, such as through FSM operator associations
- Strengthen local social norms (e.g. against open defecation) and protocols to hold defaulters to account
- Strengthen sanitary inspection and enforcement processes
- Engage civil society to hold service authorities and providers to account on S&H issues

4

- Undertake assessments (e.g. KAP, SFDs,..) across the area of jurisdiction of the service authority, to enable evidence-based district-wide planning and to provide market intelligence
- Support the development of joint WASH plans which cut across WASH, environment and health sectors, and encourage multi-stakeholder dialogue on S&H
- Ensure WASH plans focus on *sustainable* services, consider the wider FSM chain, and how hygiene promotion/ social norms will be constantly reinforced

5

- Undertake business / financial modelling of FSM services across service chain and engage financing institutions and market-based players to offer customer and service provider financing products for S&H
- Undertake business development support to service providers, to increase their creditworthiness
- Help service authorities and providers calculate life-cycle costs of sanitation services
- Advocate for targeted subsidies to ensure viability across sanitation service chain, and where needed to support vulnerable households
- Advocate for and track budget allocation for direct support costs to ensure funds for ongoing monitoring, enforcement, reinforcing hygiene messages / social norms, etc.

6

- Strengthen mechanisms for post-ODF monitoring, and ongoing monitoring of hygiene practices and social norms
- Strengthen monitoring processes on FSM services (which may include monitoring by service authority, FSM associations or other market players)

7

- Support feasibility assessments/ pilots of 'closed sanitation loop' approaches and technologies
- Build stakeholders capacity on SFDs, Water Safety and Sanitation Safety Plans and sludge treatment approaches

8

- Encourage multi-stakeholder platforms for sharing and discussing learning on S&H initiatives
- Strengthen information flows between sector / local-level learning platforms

9

- Raise political and institutional awareness on the importance of sanitation, and of the wider sanitation service chain (undertaking Shit Flow Diagrams can be powerful tools for this)
- Advocate for and track budget allocation for sanitation, and engage civil society and journalists
- Support widespread demand creation for S&H in communities, not only toilets, but for ODF and a clean and healthy environment. Undertake this in partnership with market-based actors, to link demand and supply
- Help to establish and strengthen social norms relating to S&H, such as on ODF, sanitary toilets, and avoiding informal sludge dumping
- Ensure 'project based' hygiene promoters/natural leaders and other 'volunteers' are progressively incorporated into wider system

Figure 8: Examples of actions to strengthen sanitation and hygiene aspects of the WASH system. Source: Authors

7. CONCLUSION

This discussion paper seeks to analyse how applicable WASH system concepts and frameworks (particularly those used by A4C and the SSI) are to the specifics of sanitation and hygiene and how sanitation and hygiene could be better reflected in them. It has found that whilst many aspects of a WASH system and the pre-requisite conditions for a 'functioning' system may be applicable equally for water, sanitation and hygiene, there are key distinctions that set sanitation and hygiene aside from water supply services and that require unpacking.

A key difference is that water supply is often considered a public good (and service) whilst sanitation is often considered a 'private good', which has implications for which aspects of the system need to be strengthened, and brings issues such as demand and user behaviour to the forefront. These differences also have an influence on service delivery models, and the role of service authorities, for example between investments in public infrastructure, or ensuring the service environment for household-financed, market-supplied products and services. It also makes the definition of 'service provider' more challenging to apply for sanitation (considering the role of the household), and the definition of a hygiene 'service' less consistently applied across the sector. Sanitation is often seen as 'the poor cousin' to water supply, and demand for sanitation and hygiene cannot be taken for granted. As such political commitment and user demand and behaviours are critical aspects to consider.

This paper suggests that specific consideration is needed to ensure analysis and strengthening of WASH systems are not inadvertently 'water' biased and efforts are in place to adequately address the sanitation and hygiene elements.

Many of the suggested adaptations for sanitation and hygiene similarly apply to self-supply of water by households, given the analogous roles and responsibilities of households, the service authorities and market-based service providers. As with sanitation and hygiene it is argued that self-supply has also received more limited consideration in WASH systems thinking to date in comparison to communal water supply.

It is hoped that the adapted and more comprehensive list of building blocks and sub-factors proposed in this discussion paper will serve as a supporting resource for WASH practitioners looking to better incorporate sanitation and hygiene related elements into WASH systems strengthening efforts. This paper does not seek to be 'the definitive word' on sanitation and hygiene from a system strengthening perspective, nor does it aim to prescribe the framework or checklist presented in this paper for use by all sector stakeholders. Different organisations use different frameworks, which focus on various elements of the system, and these are all equally valid.

In the spirit of being a collective sector movement towards understanding and finding solutions to the challenges of poor WASH service delivery, the authors of this paper hope to 'add fuel' to debates on WASH systems and that the suggestions presented in this paper will be further taken up and considered in future systems strengthening efforts.

The process of developing this paper identified the somewhat limited documentation in the sector on issues such as the integration of sanitation and hygiene into systems thinking and practical examples or guidance on how to do this and how water self-supply can be considered in systems thinking. This paper therefore ends with a call to action to WASH system thinkers and sanitation experts, to continue and advance the discussion on points raised in this paper and to further build on the body of documented evidence in the sector on these issues.

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GLOSSARY

Systems and the WASH Systems Approach[48]: Modern societies are made up of complex, adaptive and interlinked systems of people, laws, political and financial institutions, private companies, technologies, markets and regulations all constantly interacting, both formally and informally and responding to different sets of incentives, sanctions and influences. This is as true for the WASH sector and the services it delivers as for any other part of a modern economy. Adopting a 'systems approach' therefore means recognising and understanding that any strong national system for WASH service delivery will require all of the factors to be in place at all institutional levels – from infrastructure, finance, policy, coordination to capacities and environmental conditions - and include different actors – from households and communities to local government, national ministries to private companies and aid agencies to politicians – being able to work together effectively and at scale.

Systems Strengthening[49]: Systems strengthening is part of taking a 'systems approach' and is a means to an end. It involves taking actions and supporting interventions that are considered likely to strengthen one or more elements of a system incl. both the factors (institutional arrangements and coordination, service delivery infrastructure, monitoring, planning, financing, regulation and accountability, water resources and environment, learning and adaptation), as well as capacity of actors and their inter-relationships (i.e. political economy of decision-making, incentives and dynamics) to improve quality and sustainability of WASH services and ensure that all populations are served. Many organisations engaged in systems strengthening have developed their own framework of factors or system building blocks to guide their work. It is important to note that there is no globally agreed list of sector building blocks.

WASH Service Level & Service Delivery Mechanisms[50]: WASH service level refers to the quality or standard of service, measured by criteria set by national standards and/or norms for Sustainable Development Goal (SDG) 6. With SDG 6, the global community has set targets to achieve universal and equitable access to 'safely managed drinking water` (SDG 6.1) and 'safely managed sanitation and hygiene' for all (SDG 6.2), by 2030, while the poverty goal (SDG target 1.4) calls for universal access to 'basic services'.

Water Supply: According to the SDG definition, safely managed drinking water services refer to water from an improved water source (e.g. piped water, boreholes or tube wells, protected dug wells, springs, rainwater, and packaged or delivered water) that is located on premises, available when needed and free from faecal and priority chemical contamination. Basic drinking water services in contrast refer to drinking water from an improved source, but with a collection time of not more than 30 minutes for a round trip, including queuing. Service delivery models range from self-supply and community managed to direct local government and utility managed, with different types of ownership (public, private, public-private). Key criteria for water supply include quantity, quality, reliability and accessibility.

Sanitation: The targets under SDG 6 address sanitation beyond toilets, including aspects of safe excreta management and reuse. According to SDG definition, safely managed sanitation refers to the use of improved facilities (e.g. flush / pour flush to piped sewer systems, septic tanks, pit latrines, ventilated improved pits or composting toilets) that are not shared with other households and where excreta are safely disposed of in situ or transported and treated offsite, while basic sanitation refers to the use of improved facilities that are not shared. Sanitation facilities need to be continuously used with a sustained absence of OD and all facilities equipped with a handwashing facility (including evidence of use). Service delivery models range from self-supply and community managed to direct local government and utility managed, with different types of ownership (public, private, public-private). Key criteria for sanitation include accessibility, use, reliability and environmental protection.

Hygiene: In the SDG definition hygiene is subsumed under sanitation with a dedicated indicator referring to use / availability of a handwashing facility on premises with soap and water. Hygiene, however, includes a wider set of behaviours and measures that are able to reduce the burden of infectious diseases at home and in the community. It includes e.g. hand hygiene, personal hygiene, safe excreta disposal, ensuring safe water at the point-of-use, menstrual hygiene, general hygiene (laundry, surfaces, baths, sinks), food hygiene (cooking, storing, preventing cross-contamination), animal excreta management and solid waste management. In order to achieve better health outcomes, improved hygiene behaviours, cultural and social sensitivity, hygiene education, behaviour change and increased awareness at all levels of society are required.

[48] Adapted from A4C 2018
[49] Adapted from A4C 2018
[50] Adapted from JMP 2017 & German WASH Network 2018