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Evaluation of the Eawag Research Programmes with contributions from the Global Programme Water between 2015-2021

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Acronyms

ADB	Asian Development Bank
ATM	Automated Teller Machine
BBC	British Broadcasting Corporation
BORDA	Bremen Overseas Research and Development Association
CAWST	Centre for Affordable Water and Sanitation Technology
CLTS	Community-Led Total Sanitation
CNN	Cable News Network
COVID-19	Coronavirus Disease 2019
CSP	Citywide Sanitation Planning
CWIS	Citywide Inclusive Sanitation
DAC	Development Assistance Committee
DFC	Development Finance Corporation
Eawag	Swiss Federal Institute of Aquatic Science and Technology
EFE	Effectiveness
EFI	Efficiency
EPP	Eawag Partnership Programme
EQI	Equity
ET	Evaluation Team
FSM	Faecal Sludge Management
GAP	Groundwater Assessment Platform
GCM	Geospatial Contaminant Mapping
GDM	Gravity Driven Membrane
GLAAS	Global Analysis and Assessment of Sanitation and Drinking-Water
GPW	Global Programme Water
IMP	Impact
JMP	Joint Monitoring Programme
LMIC	Low-to-Middle Income Country
MOOC	Massive Online Open Course
MUS	Multiple-Use Water Services
NPR	Nepali Rupees
ODF	Open Defecation Free
OECD	Organisation for Economic Co-operation and Development

REL	Relevance
RWSN	Rural Water Supply Network
SDC	Swiss Agency for Development and Cooperation
SDG	Sustainable Development Goal
SESP	Strategic Environmental Sanitation Planning
SUS	Sustainability
SWA	Sanitation and Water for all
SWM	Solid Waste Management
SWP	Safe Water Promotion
SYN	Synergies
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNHCR	United Nations Refugee Agency
UNICEF	United Nations Children's Fund
USA	United States of America
WABES	Water, Behaviour Change and Environmental Sanitation
WASH	Water, Sanitation, and Hygiene
WESSP	Water and Environmental Sanitation Services for the Poor: Research, Knowledge and Professionalism
WHO	World Health Organization
WST	Water Supply and Treatment
WWQA	World Water Quality Alliance

Executive summary

The Global Programme Water (GPW) has been supporting the research activities of the Swiss Federal Institute of Aquatic Science and Technology (Eawag) over the past 15 years. This independent evaluation provides an opportunity for the Swiss Agency for Development and Cooperation (SDC) to look back at its partnership with Eawag through its implementation of two key programmes:

- Phase 4 of the 'Water and Environmental Sanitation Services for the Poor: Research, Knowledge and -Professionalism' (WESSP), 2015 - 2017.
- Phase 1 of the 'Water, Behaviour Change and Environmental Sanitation' (WABES) 2018 - 2022.

The evaluation has been commissioned by GPW, with the overall purpose of taking stock of the current situation, looking into past achievements, knowledge product developments, impact, uptake, and sustainability of practices. It also serves to highlight lessons learnt, major insights and/or key issues, particularly around research feeding into policy and/or translating into practice on the ground.

Following the inception period, a set of 16 evaluation questions were developed under the criteria (Relevance, Effectiveness, Efficiency, Impact Sustainability, Synergies, Equity), with major findings summarised below:

Relevance – are WESSP/WABES doing the right things and are they consistent with global priorities and responding to actual challenges?

- WESSP and WABES programmes are aligned with global priorities identified by the WASH sector. Notably, many of WESSP and WABES research themes are identified as areas that warrant more evidence to achieve the scaling up of SDG Goal 6.
- The relevance of the programmes is enhanced by Eawag's methods for designing its critical research projects.
- Eawag's research approach is to carefully consider needs on the ground, through an in-depth analysis at the start of projects. The approach ensures that needs are mapped out and targeted and that interventions are appropriate for the context. This is a strength of Eawag and an important sector-level lesson where many partners are moving from basic services to safely managed services.
- Some examples of projects have been identified as niche and potentially irrelevant for the context. This occurs in cases where beneficiaries are reached in a limited way, which can confer research as being less relevant.
- WESSP and WABES are broadly in-line with Switzerland's International Cooperation message and with GPW strategies in the periods of implementation.

Effectiveness – do the results contribute to the overall goals as planned? To what extent has the research translated into policy/practice and actionable measures?

- The WESSP programme has achieved outcome and output level results as planned. The WABES programme is largely on track to achieve its objectives, with small changes to proposal outputs. In the WABES programme, the COVID-19 pandemic has had a small impact on some of the research results, and some outputs have been adjusted accordingly. WESSP, and likely WABES when complete, have largely been successful in achieving the outcomes it set out to achieve.
- In the case of digital learning (WABES outcome 3), attention to adapting and tailoring content and learning methods to meet specific users' needs has led to a high degree of effectiveness. E-learning is seen to be a strength of WESSP and WABES and further contributes to the effective dissemination of WESSP and WABES research.

- Eawag staff have built up ways to apply or maximise the dissemination of research so that they reach practitioners and policymakers. Research is then disseminated at different levels, through their partner networks, and synergies are created with other similar programmes, using outreach methods to maximise effectiveness. This is a strength of WESSP and WABES.
- Eawag's focus on research use, rather than research production, has had a clear influence locally (in-country). Illustrative case studies were developed to demonstrate this finding:

Example case 1: The case of Tikapur/Kohalpur in Nepal (small towns) has shown that aggregation of research projects in FSM (activities included: translating the Sanitation Compendium, testing and validating Shit-flow diagrams, Volaser and testing of quantities and qualities of FSM, students being supported to compare sanitation systems and validating a SaniPath tool) has had an impact on the local capacities and the political will of key decision-makers and stakeholders, equipping them with skills to plan and act on implementing effective FSM solutions locally. However, at the national level, the research-to-influence link can be difficult to identify and highly complex. This is mainly because of the range of stakeholders working in Citywide Sanitation approaches in Nepal aiming to influence national policy, including organisations who have planned and budgeted for the policy support.

Example case 2: The various research projects through the Management of Excreta, Wastewater and Sludge (MEWS) project taking place in Kampala has developed a portfolio of solutions to improve FSM approaches in the city. The research activities are informing resourcing and investment plans aimed at developing FSM systems in urban authorities, by putting in place a financing mechanism to increase the production of the treatment plants. It is expected that capacity building will improve the management of the treatment plants.

Example case 3: In Uganda, promising examples are shown with the trialling of the Gravity Driven Membrane (GDM) research, where a specific technology could be scaled up in site-specific areas (saline, water-stressed locations). Cost is a potential limitation, however, and exploring sustainable financing options is required.

Efficiency – were the results achieved in a cost-effective way?

- The evidence available suggests the models pursued through the Eawag programmes are cost-efficient.
- The arrangement between Eawag and SDC under WABES is also regarded as a well-designed set-up that positively contributes to cost-efficiency.

Impact – how are we contributing to the overall goal?

- Impact monitoring at WESSP/WABES does not occur systematically, largely due to the impracticality of measuring development impact from research. As a result, impact can tend to be assumed.
- There are three inter-linked theoretical models that have emerged from WESSP and WABES that help understand the means by which research can achieve development impact:

1. **Local / national impact** through the research projects (i.e. research influencing policy/practice). In Nepal and Uganda, evidence of local to national impact is apparent, albeit limited. Impact is likely derived through building a research and evidence-based culture that supports governments to accomplish SDG goals for clean drinking water, having an impact on behaviour change and acceptance of new technology. It is too early to see impact at the community level (i.e. change in health, improvement in lives of those reached), although in Eastern Uganda there are some initial indications with the GDM project, where the project facilitated a move towards bulk water supply in two highly water stressed and marginalised districts. When the focus is on

the national level, there have been an exceptional case where Eawag's research has been a trigger for national action, through the groundwater contaminant research in Pakistan.

2. **Sector level technical influence in practice** at WESSP/WABES level (i.e. knowledge contributing to dispersed change in practice). Whilst lines of research to impact can be hypothetical at the sector level, there is convincing evidence that Eawag has influenced the practice of its partners in key areas. Eawag's co-generation of research with diverse stakeholders gives confidence that impact could occur at the wider WASH level. Impacts are also discernible from the WABES e-learning activities, leading to enhanced ownership and empowerment. Approaches to learning and capacity building are seen to be a strength of WABES.
3. **Global level impact through researcher knowledge informing policy processes** (i.e. knowledge contributing to policy model). Activities mentioned by theme leads include serving on panels, contributing to global forums, or co-writing or contributing to global publications. These activities do not contribute to impact on their own but form part of a wider strategy that has a global impact on policies.

Sustainability – to what extent have the Eawag programmes experiences and evidence base been captured, passed on and capitalised upon?

- The extent to which advances in research and the generation of new knowledge have been effectively captured, shared, and capitalised on is not clear. Several examples indicate it is happening in a variety of ways, though it is hard to quantify how sustainable different initiatives have been without a more comprehensive dataset.
- Efforts have been made by Eawag to ensure research is relevant, fit-for-purpose, and well-disseminated to encourage uptake.
- Eawag's experiences and evidence are sustained in other ways, such as the network the institute cultivates through its approach to research.
- Within Nepal and Uganda, the range of research projects under WABES have built capacities and furthered technical options and planning.

Synergies – are the programmes synergising with other similar initiatives, are lessons fed into Swiss interventions in-country, and are programmes aligned with national priorities?

- Working in synergy with similar and/or existing initiatives is ingrained in how the WABES programmes and, to a lesser extent, WESSP programmes work. This is partly due to the timeframes of funding and that research projects are co-funded. SDC's funding has allowed research to be applied. Eawag has an agile way of drawing on complex networks of North and South based partners, students, and collaborators.
- Eawag's bottom-up, networked approach has helped create new synergies or contribute to similar, ongoing initiatives. Their e-learning initiatives have helped establish synergies with different implementing organisations working on similar themes.
- The transfer of lessons to other Swiss interventions at the country level does not happen directly. The transfer appears to happen more systematically through connections at the Switzerland level – via communities of practice and researcher-advisor networks. More widely, in SDC better synergies could be built.
- The countries of focus for WESSP and WABES do not significantly overlap with SDC GPW focus countries, which limits the scope for potential transfer. Where an overlap between the SDC mandate and research exists, integration of lessons into other Swiss interventions is not clear. Disseminating lessons across the Swiss portfolio in-country is not always perceived as a priority.

- There are good examples of WESSP and WABES outputs being coordinated and complementing other global WASH sector initiatives.

Equity – are the programmes inclusive to vulnerable groups?

- Available evidence suggests Eawag make efforts to be inclusive to vulnerable groups as appropriate to their work.

Recommendations take into account the **conclusions and lessons drawn** from WESSP and WABES programmes. One major lesson is that Eawag has been successful in identifying knowledge gaps, drawing out critical research questions, and taking the time in the design and set-up phase of projects. However, the perception of Eawag as a group of academics can hinder support and limit the transferability of lessons in countries of Swiss intervention. Eawag has been successful in having a strong and live network that is continually nurtured. This has proven key to supporting and managing successful research activities, which has included engaging new and existing sector professionals from across the world in their academic activities. Having a specific and unique offer (i.e. a defined package of support) in digital learning and in synthesising technological approaches across portfolios (i.e. through the Sanitation Compendium) has raised the profile of Eawag in the sector, strengthening Swiss voice internationally. Finally, the impacts of influencing policy from high quality, relevant research cannot be assumed. A summary of the recommendations include:

1. In planning future programmes, **relevance** could be enhanced by setting out the logic between individual research projects planned, their link to contributing to thematic areas of focus, and the “practitioner” target audiences of research outputs.
2. The pathways of **research to impact** can be a complex process to follow. Through focusing on outcome level activities in a small number of contexts, where larger investments through WESSP/WABES have been made (i.e. where there are multiple research projects taking place in a certain theme), a better basis for policy and practice change could be provided. Focussing on a small number of contexts could also allow greater support to be given to partners and their continued engagement in these processes. A focus on outcome level activities, and the critical knowledge gaps, rather than individual research projects in a smaller number of contexts, would help achieve greater effectiveness in changes in policy and practice.
3. Recent experiences from WABES indicate that four years for a programme is the ideal length for an **efficient** funding cycle.
4. More data should be collected on the MOOCs to better understand the impact they are having.
5. A **new narrative on impact** from research should be developed through designing tools that adequately monitor impact from WESSP and WABES. This should include the connections made from working in collaboration across networks and themes to lead to impact at the national and global levels. At the national level, aggregation is needed to leverage targeted engagement initiatives.
6. Eawag should focus its support to **sustainability** broadly within the WASH sector, by promoting sustainability from a capacity development perspective. This can be achieved through mainstreaming its strengths within the sector.
7. As WABES or WESSP as stand-alone programmes are not well known globally, **synergies** at the programme level and by location should be considered to consolidate lessons from research. This could also improve Swiss visibility.

8. To better support Swiss programming, more attention should be paid to defining and communicating the support/advice that Eawag offers to its GPW staff and partners. This could include translating what support packages are offered, and more generally to Swiss partners.

1 Introduction

1.1 Background

The Global Programme Water (GPW) has been supporting the research activities of the Swiss Federal Institute of Aquatic Science and Technology (Eawag¹) over the past 15 years. The evaluation provides an opportunity for the Swiss Agency for Development and Cooperation (SDC) to look back at its partnership with Eawag through its implementation of two key programmes:

- Phase 4 of the 'Water and Environmental Sanitation Services for the Poor: Research, Knowledge and -Professionalism' (WESSP), 2015 - 2017.
- Phase 1 of the 'Water, Behaviour Change and Environmental Sanitation' (WABES) 2018 - 2022.

Funding for the programmes has been allocated to the different technical groups that comprise Eawag, who design and implement research projects according to their thematic focus. The technical groups, their thematic areas and research projects are referred to throughout the report in alignment with those set out in the Credit Proposal and Annual Reports. These research projects are referred to throughout the evaluation and used as supporting evidence for findings relating to the two research programmes, around which the evaluation is centred. The programmes bear many similarities in their general approach and only a few differences (e.g. WABES is more oriented around behaviour change and sanitation, whereas WESSP places more emphasis on groundwater). In terms of their respective timeframes, WESSP had a much longer preceding phase,² whilst WABES will be heading into a second phase in due course.

1.2 Purpose

The purpose of the evaluation was threefold:

1. To **take stock of the current situation**, looking into past achievements, knowledge product developments, impact, uptake, and sustainability of practices.
2. To **highlight lessons learnt, major insights and/or key issues**, particularly around research feeding into policy and/ or translating into practice on the ground.
3. To **provide recommendations for future action**, looking into opportunities, anticipated challenges, and planned next steps.

The evaluation scope covered three key areas:

- **Programme delivery** (as outlined by the logical framework / Theory of Change), including synergies between the various teams and research projects.
- **Constructive collaboration**, including i) the development of opportunities, synergies, relevant partnerships, and capacity building with local research centres, universities etc., and ii) cooperation with the DFC field offices and other development partners, to inform and feed into their respective intervention strategies.
- Assessment of the **research to policy to action impact**, both at the country and global level.

The evaluation team (ET) have been particularly attentive to the synergies between teams and research projects, the partnerships (formal and informal) developed, and the actions demonstrated from the programmes that have led to policy outcomes. The 'synergies' are explored in terms of collaboration in Switzerland and abroad (e.g. with other Swiss partners, within Switzerland and globally, and specifically in

¹ Throughout this document Eawag is used as the institution name. We do not differentiate between Eawag and Sandec for ease of reference, though we do recognise the distinction.

² WESSP had 3 previous phases, whereas WABES had no preceding phases.

the countries to be visited by the team), research partners and local institutions; as well as cooperation with SDC field offices and other development partners including from Eawag's backstopping mandate, and from the capacity building outputs such as the Massive Online Open Courses (MOOCs).

Both programmes have been active at both the global and country level. Specifically, the geographic scope of the evaluation covers Switzerland (the 'global lens') as well as Nepal and Uganda (the 'country lens'). Interviews were also conducted with personnel involved in Eawag projects in Peru, to incorporate additional country perspectives. Jordan has been demonstrated as an example of a country with a strong WASH focus, with no Eawag presence. The team have consequently worked to ensure the data collection is balanced and reflective of the focus areas of the evaluation, split appropriately across Switzerland/globally, Nepal and Uganda, and beyond.

Throughout the evaluation, the team have been cognisant that whilst the SDC is an important and integral funder of Eawag activities, Eawag is an independent research institute with its own mandate, goals, and objectives. Efforts have therefore been made to accommodate SDC's areas of interest and be mindful of Eawag's understanding of its purpose and outcomes. This also extends to differing notions of key terminology, especially 'impact', which will be broadly defined as changes to peoples' lives throughout the report. The evaluation was comprised of 56.5 total consultant days, conducted over a 5-month period, starting in October 2021 and concluding in February 2022.

2 Methodology

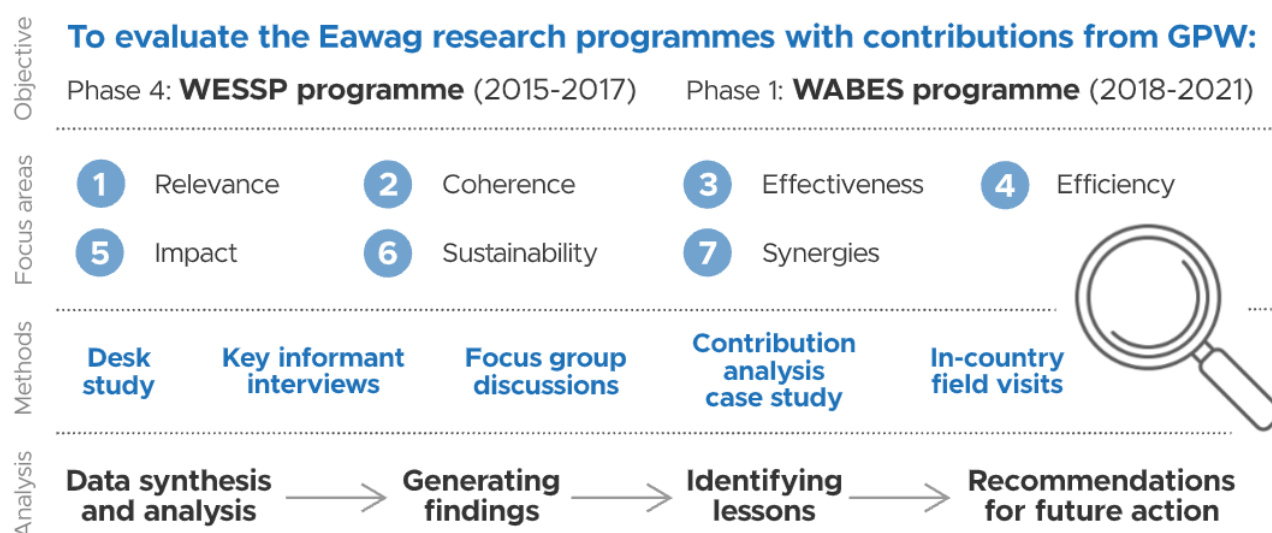
2.1 Approach and methodology

When it comes to evaluating research for development, there are several unique features that need to be considered compared to other development interventions. This is particularly true for research to policy to impact action, which can have long, non-linear results chains with intermediary links in the causal chain before the desired outcome (or impact) is realised. Outcomes in this respect can also be difficult to qualify in the absence of having a full picture of other actors' activities and how they might contribute to influencing the same outcome. As this evaluation broadly looks at collaboration, synergies, and possible policy impact (or impact on the ground), the team were mindful of where Eawag's inputs start and finish, and how they have collaborated with other partners to achieve outcomes or impact. It was also noted that researchers' modes of work, which are usually packaged into specific units (i.e. student theses, papers, webinars/workshops etc.), do not always align perfectly with timelines of partner organisations and in-country activities.

The overarching goal of the evaluation is to assess the Eawag research programmes with contributions from GPW, WESSP and WABES. The evaluation adopted a utilisation-focused approach, working closely with SDC and Eawag to ensure the findings and recommendations are relevant and actionable. Contribution analysis was also employed to map observed results against a Reconstructed Theory of Change in a set of research projects (concentrated in two municipalities in Nepal), by reviewing two potential cases for change resulting from research outputs in Uganda. In the case of Nepal, the process entailed reviewing local/national changes resulting in the research reviewed, and whether logic and assumptions were valid. The aim of this was to demonstrate how the changes in local and national policy may have been derived from the research activities, alongside other important factors. It was decided to do this at the 'research project' level, rather than at the WABES/WESSP level, as determining how change has occurred would be too broad and generalised.

An overview of the evaluation methodology can be found in Figure 1.

Figure 1. Evaluation methodology



Seven focus areas were identified, adapted from the OECD-DAC criteria, to structure the evaluation questions (EQs) against. The EQs were adapted from the Terms of Reference and revised during the inception phase to help streamline the focus of the evaluation. Preliminary discussions with SDC were held to help identify which focus areas were of particular interest, with more emphasis placed on these throughout the evaluation process (e.g., synergies and research to policy to impact action). It was noted by the ET that in many cases, it is too soon for outcomes or impacts to be achieved. As a consequence, for some of the EQs, specifically under sustainability and impact, findings have been presented as either preliminary findings on a limited number of outcomes and/or impacts; or the projected likelihood of outcomes, impact and sustainability, based on a set of assumptions.

Three main methods were used to collect data:

- A **desk study** was conducted to review relevant documentation from Eawag and SDC. This included progress reports, research products, financial reports, strategy documents, programme proposals, and logframes. Additional documents were sourced through internet searches to identify evidence of additional Eawag activities and research outputs (including communication) under WESSP or WABES. Together, these sources provided important contextual information and insights into the work of Eawag during the period under review.
- **Key informant interviews** were held with a range of stakeholders, including Eawag staff in Switzerland over a 2-day visit, project personnel and partners in Nepal and Uganda, and Peru, and members of international organisations, academia and the Eawag Advisory Board.
- **Focus group discussions** were also held, primarily during project visits in Uganda and Nepal.

Data collected was captured in a matrix tool and mapped against the relevant focus areas and evaluation questions to enable data analysis to occur. Emerging findings and lessons were subsequently generated, and recommendations were drawn from these. The findings presented in the evaluation report were validated during an online restitution meeting and recommendations were further developed to ensure they are fit for purpose.

2.2 Challenges and limitations

Various challenges and limitations were faced during the evaluation:

- Restrictions imposed as a result of the COVID-19 pandemic affected the ability of the international team to join for the field visits in Nepal and Uganda, as well as in-person participation in the restitution meeting. Anticipating this during the evaluation design phase, resulted in trusted and highly capable national consultants being invited to join the team to lead on the country-level data collection. Video call software was also used to enable remote participation in interviews and meetings.
- One limitation has been the availability of evidence for some of the more intangible aspects of understanding outcomes of research and capacity building, where uptake by sector professionals is typically non-linear, context is crucial, and complexity is the norm. To mitigate this, we have documented the quality of evidence throughout so that instances where divergence is due to evidence weakness, can be accounted for.
- Differences in the understanding of key terminology made it challenging to reconcile elements of the evaluation. Most notably, 'impact' is generally conceptualised differently in research and international development, with the latter referring broadly to changes in peoples' lives. In this context, the development of a policy as a result of a research project would constitute an outcome (rather than impact). Research programmes also do not typically produce the same types of monitoring data as community development programmes. To get around this, the team have made clear caveats in parts of the report where this is an issue and endeavoured to provide a balanced assessment.
- The question of attribution can be a hard one when looking at examples of research to policy to action impact. There are challenges in generating insights into the pathways from the production of research to the societal impacts. Contribution analysis has helped navigate this dilemma somewhat and the team have found it has been possible to draw lines of attribution in most examples explored. The attribution issue also applies to the funding of programmes and the difficulties in disentangling SDC funding from other funding sources.
- Time constraints and scope of work (i.e. available consultant days spread amongst the team) limited the depth and scope the evaluation could incorporate. Additional activities were integrated into the evaluation to help verify the emerging findings, such as searching for corroborating evidence online, particularly on collaboration and influence (e.g. Eawag's involvement in co-authoring or contributing to published documents).
- Related to the point above, the complexity of WESSP and WABES research programmes has meant that some of the terminologies are used in a basic way – for instance, the report does not distinguish between Eawag and Sandec; the evaluation attempts to follow the structure of referring to programme level (i.e. WESSP or WABES) where relevant to describe findings, thematic (represented at Eawag/Sandec department level i.e. Water Supply & Treatment Theme) and research projects (i.e. the WARM project) where possible. It is also understood that research projects can change name as they progress. Therefore, the team has attempted to use consistent terminology where possible.
- The breadth of projects in both WESSP and WABES and associated information available made it difficult to give equal attention to the various technical groups' work across the board. Some projects have therefore received more focus than others, particularly those conducted in Uganda and Nepal, where the team was able to visit on the ground and liaise with partners. Evidence gaps have been noted in the report and factored into evaluative judgements made.

3 Findings

3.1 Relevance

Relevance: are we doing the right things?

REL. 1	Are the Eawag programmes consistent with global priorities, trends and developments, responding to actual global challenges?
REL. 2	How consistent are the results with the needs of the target groups?
REL. 3	To what extent have the Eawag programmes responded to the (previous) GPW Strategy (2017-2020) and Switzerland's International Cooperation Message?

WESSP and WABES programmes are aligned with global priorities identified by the WASH sector. Notably, many of WESSP and WABES research themes are identified as areas that warrant more evidence to achieve the scaling up of SDG Goal 6. Individual research projects were all found to broadly align within SDG 6 and contribute to its sub-indicators. These aspects are reinforced by Eawag's mandate and areas of thematic expertise.

WESSP and WABES are positioned within the WASH sector in terms of its overall vision and objectives and play an important role in understanding aspects of WASH systems strengthening (i.e. strengthening the environment into which water supply and sanitation services are introduced to ensure they continue to deliver benefits over time). The most recent WASH sector GLAAS report highlights gaps and vulnerabilities in WASH systems and the need for further strengthening to assure sustainable and effective WASH service delivery in countries.

The research themes explored through WESSP and WABES address many of the areas that are poorly understood and require more attention in the WASH sector. They are also areas that have the potential to leverage larger gains in the sector. For instance, integrated WASH programmes can have a tendency to neglect systems-level interventions. Faecal sludge management (FSM) in towns and small cities is often considered the missing link in sanitation service delivery, with insufficient empirical data for estimating FSM accumulation rates and demand for services, and appropriate treatment and disposal facilities generally lacking.³ SDG 6, Indicator 6.3.1 – wastewater treatment progress is slow: the recent GLAAS report's⁴ key indicator shows that only 22% of countries have published reports on treated wastewater flows and faecal sludge volumes and that less than 60% of countries have formal national standards for faecal sludge, with the recent GLAAS stating that there needs to be an expanded focus on FSM. FSM is one example but many of the research projects are generally recognised as being captured under SDG 6, including groundwater, water quality, safe water storage and Solid Waste Management (SWM). The alignment is partially explained by Eawag's mission to bridge science and the 'real world', seeking solutions and approaches to promote the provision of safe drinking water and wastewater disposal.⁵

WESSP and WABES research is oriented to address key gaps existing in WASH sector knowledge. Examples include improving sanitation services in small towns and peri-urban areas, and water system sustainability and end-of-pipe quality challenges. In the case of the former, Eawag has targeted its support at closing knowledge gaps in small towns, in recognition of previous support to rural areas through community-based support (now changing to utility-style) and large cities taken on by development banks. For instance, in

³ The World Bank WSP, 2014, 'The Missing Link in Sanitation Service Delivery'. Available at: <https://www.wsp.org/sites/wsp/files/publications/WSP-Fecal-Sludge-12-City-Review-Research-Brief.pdf>

⁴ UN Water, WHO, 2019.

⁵ Under 'water and human welfare': one of the 3 key areas of Eawag's research

Nepal, this has included a set of projects to validate integrated sanitation planning approaches (field-tested in Kohalpur and Tikapur towns), described in further detail in the sections below. In Uganda, approaches have included the need for revised planning approaches to accommodate peri-urban areas, including improving water safety planning processes (which are incomplete, as implemented by a national water utility in small towns).

Relevance is enhanced by Eawag's methods for designing its critical research projects. Eawag staff (research leads) are active contributors to evidence-based knowledge in the WASH sector at the Switzerland/and global level, thereby enhancing coherence with global priorities.

All research themes are found to be guided by SDG 6 and its sub-indicators and projects are defined collaboratively with sector partners. Theme leads have discussed their methods for collaboration within the WASH sector, which includes taking part in sector-level conferences, learning events and interactions through Eawag's extensive contacts and networks. A board of well-known WASH sector experts also guide WESSP and WABES planning at a strategic level. As a result, WESSP and WABES are designed to maximise inputs from a broad range of sector experts, enhancing relevance.

The research that forms WESSP and WABES at the programme level is informed by current sector priorities and consider learning from previous research (designing at the programme level is described by one staff as an "iterative process... planning takes a long time"). This process is balanced with partner priorities, and "what they are wanting and willing to pay for on the ground" (described by a theme lead). Through those conversations, Eawag staff oversee a process of marrying top-level priorities with funding according to ground level needs. External interviewees have suggested that Eawag has a reputation for contributing to critical research questions and knowledge gaps. An example includes understanding the long-term viability of water schemes in difficult circumstances, with a strong competence for designing projects for complex situations in the WASH sector. Psychological ownership and groundwater modelling are also areas that have been highlighted.

Although limited in terms of evidence, some of the research projects are framed within SDG processes and in some way, contribute to global processes at the sub-indicator level. In Switzerland, staff are connected to global partnerships which monitor and drive strategy to scale up SDG 6, such as the Sanitation and Water for all (SWA) Research and Learning Consortium and the WHO/Eawag Collaborating Centre. There are indications that research results are communicated through these forums and contribute to global strategy.

Eawag's research approach is to carefully consider needs on the ground, through an in-depth process at the start of projects. This helps to ensure that needs are well mapped out and targeted and that interventions are appropriate for the context. This is a clear strength of Eawag and an important sector-level lesson where many partners are moving from basic services to safely managed services.

Eawag fosters in-depth processes to define research approaches, which includes forging strong relationships with implementing partners, with a preference for working with local researchers. The approaches are highly relevant for the target audience of the research outputs, such as:

- Local technical experts and policy makers who can help steer development to benefit the most vulnerable;
- Project officers, who manage programme infrastructure and developments, as well as set regional, national, and global agendas, priorities, and strategies;
- Researchers in local universities and centres that can help innovate practical solutions for their local contexts; and

- Local institutions that already have the relevant infrastructure and supportive policy frameworks and have a good basis for using research to sustain the efforts and benefits beyond the research lifespan.

In this sense, all aspects of WESSP and WABES projects centre on research questions that are appropriate for these groups, and the processes in place ensure they are identified together with South partners. Eawag has a highly relevant intervention strategy at outset: a focus on local researchers, capacity development; focus on the most vulnerable and achieving impact and uptake by policy and practice in Low-to-Middle Income Countries (LMICs). This approach supports a good foundation for a wider approach, something that SDC is known for – as a donor that enables long-term approaches, continuity, and flexibility to respond to changing contexts.⁶

Interviews with partners and reviews of progress reports indicate that early processes have focused on contextual research, strengthening partner capacities and planning to identify appropriate approaches under each of the thematic areas. Approaches are rigorous, scientific, and evidence-based – strong initial actions that serve as a solid foundation to determine the best procedures. Early progress reports indicate this process. For instance, in FSM, a four-country study was conducted to investigate faecal sludge dewatering, complemented by workshops with partners. The activities were useful to garner local demand and identify appropriate methods for each context. The WARM project collected data on users' behaviours and preferences. A Multi-Use Water Schemes (MUS) project implemented a study to quantify the potential added value of implementing MUS at scale, compared to business-as-usual approaches. With the REACH (Establishing a drinking water security strategy for mid-western Nepal) project in Nepal, baseline studies revealed the need for system-level and household-level treatment. As a result, partner Helvetas adjusted its approach in the second phase of field work on in-depth characterisations of contamination dynamics in gravity-fed piped water supplies.

Eawag's approach to working with partners to understand problems instead of implementing blanket solutions based on best practice has been highly valued, and there is some evidence that this has influenced partners to change their fundamental approaches to programming. One partner described how a research project in Nepal informed their approach to assessing water quality, improving their understanding of where water is typically contaminated and how it happens. The partner described that the approach was new and led to them setting up community-based laboratories to monitor water quality and undertake assessments on the effectiveness of different filter types. In Uganda, discussions with the national water utility partner revealed that the research on water safety planning and water quality analysis in one small town improved their approach and vigilance at the water treatment plant in terms of collecting and analysing high-quality data every month thereby improving the quality of water supplied to communities and regular maintenance of the network. As the sector is moving towards the SDG 6 standard of safely managed services, such approaches are important in moving the sector forward.

There are some examples of projects which have been identified as “niche” and potentially irrelevant for the current context, or that meet the needs of beneficiaries in a very limited way (in terms of scope of household needs and scale in populations reached). This can, at times, give the impression that the most important needs of the target groups are not always given priority. Furthermore, scale-up, which appears to be essential when considering needs, is not always a major focus in all aspects of WESSP or WABES.

Broadly, the research contributes to the needs of target groups as Eawag often works in locations where needs are numerous and where SDG achievement is lagging. While the WESSP and WABES research projects tend to home in on gaps and provide well-researched and planned solutions in specific contexts, some

⁶ A conclusion from “Independent Evaluation of SDC's Engagement in the Water Sector 2010-2017”, March 2020.

research projects are more targeted towards supporting more urgent needs than others. Although limited, there has been a suggestion that some research projects can be highly technical and not locally appropriate enough to be relevant.

The level of intervention could partially explain this point. Some development stakeholders (outside of the WASH sector) may struggle to see the relevance of projects that do not have a strong likelihood of being scaled up locally, but which are trialling a specific technical approach. As research outputs of WESSP and WABES can focus on the development of guidelines, tools, and technical/management solutions, the interventions designed and tested through WESSP and WABES may not always have a clear strategy for “hardware” level scale-up. Some key informants have raised concerns about the scale of projects which limit the relevance and appropriateness of the target groups (one key informant mentioned “numerous, micro-projects” which have limited relevance). Another suggestion was that some of the technologies being promoted were either too advanced/high tech (“unrealistic”), costly, and have poor potential for long term sustainability to be relevant/appropriate for the context. In some of the research projects, the programme logic hasn’t fully taken into account the external factors, in that the intervention might be suitable but other factors in place are not considered as part of the intervention, which could include markets and livelihoods – areas of focus that are not under programmes. One example is the zero-waste approach in schools in Nepal, where it was suggested that basic waste management systems needed to be in place first. In Uganda, some respondents highlighted the WESSP and WABES are designed to primarily target individual researchers and not the ‘host’ institutions, missing out on the potential for ownership and scalability of the outcomes due to limited buy-in from the leadership right from the onset.

WESSP and WABES are both broadly in-line with Switzerland’s International Cooperation message and with GPW strategies in the periods of implementation.

In a review of the Dispatch on Switzerland’s International Cooperation (2013 – 2016; and 2017 – 2020), WESSP and WABES programmes most strongly contribute to policy instrument 2: Technical cooperation and financial aid for developing countries (2017 – 2020). Within GPW, WESSP and WABES clearly align with strategies in the period of implementation (Global Programme Water Strategy 2013 – 2017; and 2017 – 2020). WESSP and WABES and their research projects are highly aligned with Component 2 of the GPW Strategy: Water Solutions, in which *GPW supports the acceleration of the implementation of SDG 6 by developing innovative solutions for the valuing of water, sustainable financing, technologies, sustainable service delivery and water management models*. Eawag’s strong focus on innovation and knowledge sharing fits with the logic of GPW to drive catalytic change and progress in the water sector. Its long-term linkages with other Swiss WASH sector partners further enhance this linkage. Developing and reinforcing local capacities and know-how are key features of the GPW strategic framework (2013-2017), specifically the focus on improving WASH services for the poor. Eawag is seen to be an important partner in strengthening the Swiss voice in the sector and helping the Swiss community of practice remain at the forefront of innovation. Sandec is strongly linked to SDC through the Aguasan community of practice, ResEAU, the Swiss Water Partnership.

There are some examples of Eawag’s research contributing to other GPW programmes. For instance, in SWM, projects have aligned and contributed to part of SDC’s Blue Schools Initiative. Eawag’s contributions here are regarded as an initiative that is technically complementary due to their specific expertise in SWM. Interviews with GPW colleagues in-country programmes and at Headquarters have reinforced the relevance of Eawag’s research and the unique activities they support, including through their backstopping mandate, to bring in technical expertise when it is needed. The online training has been identified as a relevant and effective way of reaching locations with WESSP and WABES knowledge, where GPW works and Eawag does

not have a presence, for instance in the Middle East region. One interviewee highlighted that having excellent quality knowledge available, such as the Sanitation Compendium, helps to support partners in a widespread way and boosts Switzerland's profile in WASH.

3.2 Effectiveness

Effectiveness: do the results contributed to the overall goals as planned?

EFE. 1	To what extent have the planned results been achieved at the levels of output, outcome and overall goals?
EFE. 2	Which major internal or external factors have influenced the achievement or non-achievement of the expected results?
EFE. 3	To what extent has the research translated into 1) policy and 2) practice / actionable measures?

The WESSP programme has achieved outcome and output level results as planned. The WABES programme is largely on track to achieve its objectives, with small changes to proposal outputs. In the WABES programme, the COVID-19 pandemic has had a small impact on some of the research results, and some outputs have been adjusted accordingly. WESSP, and likely WABES when complete, has largely been successful in achieving the outcomes it set out to achieve.

With WESSP, there have been some minor variations in some of the outputs. Realistic adjustments have been made in response to changes experienced in the ground context. The WESSP programme has clearly identified and disseminated integrated approaches; has developed and conducted appropriate learning content for tertiary education, and has identified and evaluated solutions for waste resource recovery approaches.

WABES is in progress and is expected to be completed in mid-2022. Most thematic groups have achieved outputs, although have adjusted activities (and outcomes) in response to the COVID-19 pandemic experiences in-country. However, several research products have already been made available to policy makers and development practitioners (described in more detail under further EFE findings below and IMP EQs findings). An extension period has been granted to resolve outstanding issues.

As a result of the COVID-19 pandemic, several research projects could not complete a final round of data collection at the field level, which was planned to take place after the onset of the pandemic. For instance, the behaviour change research in India faced delays due to COVID-19, and for the Zero Waste in Schools programme, the pandemic delayed the parts of the research that were intended to happen in schools with children (to "close loops" and get schools to develop solutions on the circular economy). In the case of the Safe Water Promotion (SWP) group, partners couldn't work in the field for the Gravity Driven Membrane (GDM) kiosks, so they focussed on training instead. The group also undertook a health impact evaluation in Nepal, with the final results being "contaminated" due to COVID-19 (i.e. the group couldn't complete the final data collection on hygiene practices because of the influence the pandemic had on changing awareness and behaviours). The group adjusted the study to accommodate the COVID-19 factor and incorporate it into the context of its findings. In Uganda, much as COVID-19 has led to increased uptake of online sharing platforms, internet connectivity among other issues affected adequate interaction of the intended target groups for the final dissemination workshops. This impacted the extent to which various policy makers, practitioners and donors could interact and interrogate the research results to inform appropriate policy and practice options for scale-up or further research.

In the case of digital learning (WABES outcome 3), adapting content and learning methods according to feedback and to meet specific users' needs has led to effectiveness being higher than planned. The COVID-19 pandemic has also unexpectedly led to improved effectiveness, as a result of increased at-home learning. E-learning is seen to be a strength of WESSP and WABES and further contributes to the effective dissemination of WESSP and WABES research.

The effect of the COVID-19 pandemic has led to an increase in people registering for e-learning. WABES has been able to use the unexpected change to engage more people in the WASH sector and disseminate knowledge and research evidence more widely. Digital learning outputs have reached a wide audience (over 163,000 learners registered), with the SWM MOOC the most well attended online event. The average course completion is 20%, which is significantly higher than industry averages of 7%. Eawag has demonstrated responsiveness to user needs by adjusting the material to reach south based learners (described in more detail under Impact level findings) and go to great lengths to listen to their demands.

Eawag has a particular strength in understanding the audience needs'. Eawag has conducted a series of digital learning workshops for South partners to build their capacity in conducting e-learning themselves and encourages partners to adapt content to their contexts. For example, in one instance Eawag found that a video on anaerobic digestion processes had been disseminated primarily via WhatsApp. In response to this learning, they decided to tailor more of their content so that it was better suited for sharing through this particular medium. Online learning is offered with subtitles in multiple languages (e.g. the Solid Waste MOOC has 13 languages available for selection) and dubbing on one course, and is freely available, further enhancing uptake. There is a potential impact on important sector partners in South countries, as highlighted by one external key informant: "how many people who participate in MOOCs have gone on to be Ministers?". Although this information is not tracked (in part, due to hundreds of people who attend the MOOCs), the data provided by Coursera indicates that MOOCs are reaching the current and future generation of WASH professionals, including ministry officials. Most of the learners are well-educated (> 75% have completed a bachelor, master or doctoral degree), the majority are from a low-and middle-income country, younger than 34 years of age and in employment. The feedback from course completers provides some anecdotal evidence about their diverse professional backgrounds (Ministries, consulting firms, UN organisations etc.).

Digital learning has taken a collaborative approach, thereby enhancing effectiveness, with examples of mutual learning and co-creation in evidence. The MOOCs themselves are collaborative and content is developed with a wide range of partners. Efforts have been made to make MOOC content more accessible to south-based partners so that it can be adapted and translated, with space for additional content to be added. Learners have been connected through a moderated discussion board (which in itself, offers a space for research collaboration, sharing ideas etc.). One story was shared where students exchanged research online (Cameroon and Tanzania) and then decided to meet and continue collaborating on their research together in person.

Eawag staff have built up ways to apply or maximise the dissemination of research so that they reach practitioners and policy-makers. Research is then disseminated at different levels, through their partner networks, and synergies are created with other similar programmes, using outreach methods to maximise effectiveness. This is a strength of WESSP and WABES.

There is a clear intent for research produced to be used in programming, and dissemination is planned from the early stages. Amongst its external partners and collaborators, Eawag has a clear reputation for producing applied research, with products disseminated within the WASH sector practitioner community. Eawag is well known as one of the leading 'research-into-use' institutions (which they promote through producing journals

articles and citations for dissemination in the academic community) in the WASH sector. A wide range of methods to achieve this have been demonstrated, including guidelines, toolboxes (systematising tools and approaches), reports and policy papers, inputs to global policy reports, content for workshops or high-level presentations (at various forums such as World Water Week), as well as content for MOOCs and other forms of training. Globally, Eawag staff disseminate their research themselves through informal and formal networks (e.g. Aguasan). One researcher described that planning for dissemination takes place in the early stages of research and those opportunities are “jumped on”. However, at the country level, dissemination methods vary, and partners are often relied on to ensure research is brokered to the right audiences. Efforts are made systematically to guidelines (capturing synthesised lessons from research activities). However, it is not clear what other activities take place to ensure knowledge brokers have access to the research, which might result in the research being disseminated in broader discussions (e.g. during workshops) where direct formulation of policies take place. The many methods and approaches for dissemination add value to the research and are seen to be “real mainstays that people know about and are using...it’s not just a one-off, in and out, but a staying power in certain countries” as described by an external stakeholder. Eawag is strong at tackling sector-level issues that are seen to be very complex, in the move towards the SDG 6 standard of safely managed access.

Eawag is well known for its compendiums and promoting approaches for safely managed systems (i.e. putting systems together based on technology options). The Sanitation Compendium, produced before WESSP and WABES, but disseminated through the programmes, have been used in many different contexts. The ET was able to observe the use of the compendium in Nepal and Uganda. A partner discussed that the compendium set up their understanding around safely managed sanitation and household water treatment systems.

Another example is through the SWP group, where previous research found that recontamination was occurring at the household level in places where water quality was thought to be safe. This led to a programme on passive chlorination, developed through a workshop with the government (Uganda) and WHO. As a result, criteria were developed for certification on household water treatment, with products made available on the market. Further dissemination occurred through a global webinar with CAWST on safe storage, and the group is currently working on guidelines to be promoted internally.

Eawag’s focus on research use, rather than research production has had a clear influence locally. Evaluation of a case study that brings together different research projects in a small-town location, the link between WESSP/WABES and local action is clear. High-quality technical support and capacity building has clearly led to changes in policy and practice in the local context and has been developed to influence local decisions makers. A case study of Tikapur/Kohalpur (small towns) in FSM is used to illustrate findings. In Uganda, promising examples are shown with the trialling of the GDM technology, where a specific technology could be scaled up in very site-specific (saline, water-stressed locations); and for FSM management in Kampala.

Nepal case study

It is broadly recognised in development that policy influence occurs in a non-linear way; that there is value in larger, more diverse bodies of evidence; that there is a recognition of collective approaches; and that many different pathways that can lead to influencing. The example of the Strategic Environmental Sanitation Planning (SESP) project in Nepal, provides more detail on potential impact identified from project aggregation at the “town” level, and national level outcomes in terms of policy change, described below on a very broad level, with a degree of uncertainty.

To explore the link between WESSP and WABES research in Tikapur/Kohalpur, Nepal, and potential links to influence policy (locally and nationally in the form of the Nationally Adopted Citywide Inclusive Sanitation (CWIS) Guidelines, 2021), the ET developed a simple reconstructed Theory of Change. The ET spoke to stakeholders at the municipal level to understand the connection and attempted to verify with interviews at the national level, supported by relevant online searches for supporting documentation including a review of the Guideline itself.

In Tikapur,⁷ research activities were conducted with various partners, including a national expert in FSM (implemented through partner 500B Solutions) in support of planning appropriate wastewater treatment methods. The activities were later replicated in a similar small town in the region, Kohalpur. The activities have included:

- translating Eawag's Sanitation Compendium to Nepali,
- testing and validating shit-flow diagrams,
- Volaser and Q+Q approach to sludge quantification and qualification,
- supporting MSc and interns to conduct comparisons of sanitation systems, and
- validating the SaniPath tool.

It is believed that the activities have led to a high degree of ownership within Tikapur municipality to plan for and support an FSM plant in the municipality. The extensive research and engagement with key stakeholders (municipal actors including local political leaders, water user committees) has clearly developed awareness and led to the capacity of the municipality to then seek solutions. Although difficult to evaluate at this early stage, the interviews have indicated a very strong sense that the capacities are ingrained and will be sustained. These changes in awareness and capacity have had a clear link to political will and have led the key stakeholders to then plan, act and develop their own solutions on their own determination. This stands in stark contrast to traditional development projects, where action can follow the presentation of donor funds, which can then lead to problems with sustainability in the longer term. Activities have also led to a high degree of ownership amongst the community (represented by Water User Committees) and thus, desire to find solutions.

Following the research activities, the municipal leaders then sought solutions for treating untreated sewage. The process included identifying and allocating land for an FSM plant with communities, undertaking pre-feasibility scoping, and discussing with potential sources of funding/donors. Funding was able to be secured through the Asian Development Bank (ADB), though were managing a project in the region (Third Small Town Water Supply and Sanitation Project). At the time of the evaluation field visit (November 2021), almost 80% of FSM plant construction was completed in Tikapur, funded by ADB in a consortium with the Tikapur municipality. In Kohalpur, which followed a similar process,⁸ a proposal for an FSM plant had been developed by the municipality in Kohalpur. The municipality has committed to allocating 20-30 million Nepali Rupees (NPR) for the construction of the Faecal Sludge Treatment Plant. 5 million NPR for the fiscal year 2021/22 has already been disbursed and they are working with other partners to fill the remaining financial gap. The graphic below outlines some of the actions which the ET was able to uncover as being influential in leading to outcomes and (potentially) impact through these activities:

⁷ A small town of around 98,000 people in Western Nepal.

⁸ The Kohalpur research took place following the Tikapur example

Figure 2. Reconstructed Theory of Change for City Sanitation Planning in Tikapur, Nepal⁹

At the national level, the research-to-influence link can be difficult to identify and highly complex. This is mainly because of the range of stakeholders working in Citywide Sanitation approaches in Nepal aiming to influence national policy, including organisations who have planned and budgeted for the policy support, with full-time staff devoted to supporting national policy. It appears that Eawag's research has, in some ways, played a part in supporting the formulation of the "Citywide Inclusive Sanitation Guideline", Ministry of Water Supply (2021), alongside other stakeholders' actions. In a review of the guideline, it is evident that a toolbox¹⁰ promoted has clear inputs from Eawag's partner, and some references made from a publication¹¹ authored by Sandec. During an interview with someone directly involved in the national level processes, reference was made to learning from another international organisation's (WaterAid) work in Kirtipur that helped shaped the guideline, with no knowledge of Eawag examples from Tikapur or Kohalpur. It is likely that the growing number of FSM projects and citywide sanitation planning examples in Nepal, of which WESSP/WABES support in Tikapur (and Kohalpur) have contributed to a stronger case for national action. However, in this case, the existence of the national guideline does not seem to have occurred directly from the WESSP and WABES research.

Uganda case study

In Uganda, two situations have been observed where WESSP/WABES research could play some part in wider impacts on policy/national approaches:

The various research projects through the **Management of Excreta, Wastewater and Sludge (MEWS) project taking place in Kampala**, has developed a portfolio of solutions to improve FSM approaches in the

⁹ Yellow boxes indicated the activities that have taken place through WESSP/WABES, the blue boxes indicate the local level changes in that have taken place, the orange boxes indicate specific changes in policy (local and national level), the red box indicates the potential change in policy, and the green boxes indicate the other contributing factors that occurred. Note that this not a comprehensive/thorough rendering of the activities and changes.

¹⁰ <https://www.fsmttoolbox.com/home>

¹¹ Sanitation21, co-authored by Sandec and SusSanA (2018).

city. The research collaborated with a wide range of partners, including academic institutions (Makerere University, University of Dar es Salaam, Kyoto University, and the University of Victoria), international organisations/NGOs (the World Bank, Borda). The research has developed affordable options that estimate characteristics of sludge at city-wide scales (the 'sludge snap app' is currently being designed), has determined optimal operating conditions for fuel quality from slow-pyrolysis and has disseminated knowledge and awareness on FSM.

The methods developed for estimating faecal sludge quantities and qualities have the potential to inform the design of efficient decentralised FSM systems in partnership with the private sector and city authorities. The NWSC has a strategy of decentralising FSM in cities and municipalities throughout the country, and there are opportunities to organise dialogues with stakeholders. This would be key in informing resourcing and investment plans aimed at improving faecal sludge management systems in urban authorities, by putting in place a financing mechanism to increase the production of the treatment plants. It is expected that capacity building will improve the management of the treatment plants. To encourage this influence, it may be necessary to finance the initial processes in partnership with Makerere University, NWSC, Ministry of Water and Environment, Kampala Capital City Authority, as well as donors such as GIZ. This process will necessitate mapping out stakeholders that could potentially support the scaling up of the research outcomes in order to stimulate national action.

Already some synergies have been observed with sector partners. The research has resulted in unintended indirect results whereby other actors such as Water for People (WfP), an INGO is using knowledge from the results of the research and supports the private sector and local entrepreneurs to turn sludge fuel into briquettes for home use. This is helping to solve the problem of managing and disposing of sludge and at the same provides employment and income to many individuals along the chain. WfP is currently working with KCCA and GIZ exploring options for the reuse of Biosolids as a Fuel (Briquettes) or Soil Conditioner (Compost) for cooking fuel made partially from stabilised faecal sludge from the NWSC Wastewater Treatment Plants. The process is being extended to Northern Uganda where WfP Water for People has also been supporting the establishment of micro faecal sludge treatment plants.

Potential is also shown in the **WABES Safe Water Promotion (SWP) projects located in the highly water-stressed, remote communities affected by the salinity of Busia and Namayingo Districts**, Eastern Uganda, implemented through 'Get Water' Uganda. The projects established the technical feasibility of inline chlorination devices at the point of collection and applicable business approaches developed. Currently, technology accreditation is being secured from the Ministry of Water and Environment, for adoption in the sector and financing options that would enable scale-up in the sector are being explored. The cost is a potential limitation and requires exploring sustainable financing options. However, it is thought that it provides the potential to move towards bulk water supply and away from point sources that have not been effective in the past.

The project has developed an effective solution for very site-specific locations, and where construction is very well monitored (the tanks were submerged in water at the time of visit). The Gravity Driven Filtration (GDM) Technology has proved its viability of treating surface / turbid / saline water from Lake Victoria as an option of providing safe water for community consumption in two Districts of Busia and Namayingo. GDM has incorporated the use of a prepaid card system to manage the collection of user fees for operation and maintenance O&M. Through this system, vendors are engaged to provide water credit to users who keep replenishing once their units run out. This allows the users to access and pay for the water they need and offers a reliable way of collecting user fees for the maintenance of water kiosks.

3.3 Efficiency

Efficiency: were the results achieved in a cost-effective way?

EFI. 1	To what extent were the Eawag programme interventions implemented cost-efficiently and in a timely way (bearing in mind any contextual challenges, e.g. the global pandemic)? ▪ Were the funds used effectively and to purpose? (e.g. no substitution, no cross-funding) ▪ Was there a difference between planned inputs and inputs actually needed? What is the reason for the difference? ▪ How do project management as well as steering and decision-making processes function?
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The evidence available suggests the models pursued through the Eawag programmes are cost-efficient. Internal and external stakeholders both remarked on the impressive level of results achieved relative to the financial inputs. This has been difficult to quantify in any meaningful way, however, given the limited data on impact (see the section on Impact for further detail).

The MOOCs enable a large number of people to be reached across the globe, including those in developing countries. Under WESSP, for example, the e-learning programme on WASH for development was accessed by over 160,000 people. A large proportion of the students at Eawag reportedly first connect with the institute through MOOCs, meaning they serve to educate but also attract individuals for further study. This latter function is also supported through the Eawag Partnership Programme (EPP)¹², which provides additional opportunities for talented students from developing students to study at Eawag.

Students at Eawag are themselves engaged in the research activities under close supervision, and in doing so, therefore contribute to the institute's results in terms of outputs and outcomes achieved. Following graduation, many of the Eawag alumni remain in research through academia or consultancy work, take positions in key organisations, and government ministries. This, in turn, strengthens the Eawag network internationally and bolsters the research through continued collaboration with trusted personnel and partners.

Whilst there are some data gaps¹³, the approach described here contains several self-evident cost-efficiencies, particularly in how the investments in capacity building are utilised to support Eawag research, both during and after enrolment at the institute. The considerable length of the programmes (with WESSP first starting over 23 years ago) has led to these networks becoming increasingly extensive and entrenched, leading to greater efficiencies as the student-research cycle has continued over time.

The arrangement between Eawag and SDC under WABES is also regarded as a well-designed set-up that positively contributes to cost-efficiency. The co-funding agreement consists of SDC providing 35% of funds. Having this core funding through WABES has allowed Eawag to have lots of key staff members on board and meant less time has been required for acquisition work – an inconvenience that many similar research institutes have to deal with. As such, Eawag is able to dedicate more resources to its research activities. According to staff, cross-funding between groups / shifting budgets does not occur, with each group leader responsible for their own lot.

¹² The EPP develops Eawag's training and applied research activities for development. The fellowship programme is part of the EPP and provides talented students with the unique opportunity to join Eawag's scientific community and receive one-on-one mentorship. It offers 6 fellowships each year.

¹³ Most notably around the MOOCs and how these translate into further education and/or work in the WASH sector. See the recommendations for specific suggestions on additional data that could be collected to help address this.

The length of the WABES programme was also appreciated by Eawag, with four years considered the optimal length for a programme cycle. It was felt by one interviewee that certain topics, such as urban sanitation, require time to go into sufficient depth and that four years worked to good effect in this regard. Cycles shorter than four, in contrast, do not allow for this and longer cycles would potentially present problems with timing around staff turnover.

Structuring outputs and reporting around the logframe was also considered an efficient approach in the SDC-Eawag collaboration. The logframes are co-constructed in a way that accounts for the shifting context within which Eawag's work is targeted, with flexibility reportedly demonstrated by SDC when things change. An example of this can be seen when plans to work in Tehran¹⁴ had to be cancelled due to the geopolitical situation in Iran. There is also scope to add outputs as the focus of the research itself develops based on emerging opportunities and circumstances. The change in reporting requirements to align more closely with the logframe has been welcomed by Eawag and has streamlined the annual reporting process. Steering and project management decisions are based on 1) this annual report, and 2) an advisory board comprised of WASH sector experts that provide guidance and feedback on Eawag's work.

Eawag's outputs and outcomes have generally been delivered in a timely fashion across both the WESSP and WABES research programmes. The COVID-19 pandemic has affected this to some degree, though not as profoundly as might be expected.

The impact of COVID has been felt across the world and led to major disruptions in the WASH sector more broadly. For Eawag, it limited the scope for field visits and meant the budget could not be used as planned. To overcome this, work plans were altered so that more of the desk-based studies occurred during periods of lockdown. For example, with school closures enforced, efforts on the zero-waste school concept were channelled into developing guidelines (discussed further in EFE 1). Second, greater emphasis was put on local partners to manage in-country activities. Whilst delays were still inevitable, research groups have broadly managed to catch up on progress against their targeted outputs and outcomes, with the exception of a behaviour change research piece in India, which is currently underway.

3.4 Impact

Impact: how are we contributing to the overall goal?

IMP. 1	To what extent can impact be identified as a result of Eawag-informed programme interventions (e.g. policy adaptation, reform or governmental action)? Did a specific part of the Eawag programme have a greater impact than another and what major successes have been observed?
IMP. 2	Which unexpected and unintended positive or negative effects have occurred as a result of Eawag-informed programme interventions?

Impact monitoring at WESSP/WABES does not occur systematically, largely due to the impracticality of measuring development impact from research. As a result, impact can tend to be assumed. The lack of an impact monitoring strategy has led to difficulty in aggregating impacts and has inhibited an understanding of the level at which the research programmes have contributed towards overall goals.

It is widely accepted in the development sector that research from impact is difficult to achieve and is very rarely the result of research alone. Document review and interviews have led the ET to understand there is

¹⁴ In May 2018, a letter of agreement was signed between Eawag and the Water Institute at the University of Tehran. However, after a key member of staff left Iran for the United States and a proposal for seed funding was not accepted, alongside the increasingly difficult geopolitical situation, this output was discontinued.

not an impact monitoring strategy, with no baseline to measure impacts against, nor Theory of Change which explains how the research programmes contribute to a chain of results that produce the intended or actual impacts. The logframe for the programmes do not sufficiently set out how research through WESSP and WABES would achieve impact (the ET accepts that the logframe is a widely used monitoring tool and is standard for funding applications). Although the logframe is seen to be working well, and adequately details outputs and outcomes against indicators, it is difficult to condense the complexity of WESSP and WABES research in a meaningful way. There is a clear benefit in that the reporting is a relatively easy process and reporting against the logframe has allowed this to occur.

For WESSP, the Credit Proposal framed overall impact goal as “poverty reduction and improvement of living standards through universal access to safe drinking water and sanitation of people living in poverty in developing countries by finding solutions that respond to the needs of the population and raising professionalism so that that can be implemented by the national authorities in the water sector”. In WABES, the overall goal is “water secure world with less poverty, where people have the knowledge and capacity to develop and live healthy lives under hygienic conditions with adequate basic services (safe water, appropriate sanitation, waste management) and measures to recover and reutilise resources”. The link between activities/outputs, outcomes and high-level impact goals can be very difficult to follow. To illustrate, WABES outcome 2 states that “policy makers and development practitioners have access to and engage with the new material of quality evidence to improve access to environmental sanitation”, however the link between the access to materials and policy changes where “...people have access to knowledge and capacity to develop and live healthy lives under hygienic conditions....” (i.e. the WABES high level impact) is unclear or very indirect. For instance, validating and field-testing new applied research concepts does not automatically lead to wide-scale uptake, although the work could have long-term impacts.

There are three inter-linked theoretical models that have emerged from WESSP and WABES that help understand the means by which research can achieve development impact:

1. **Local / national** impact through the research projects (i.e. research influencing policy/practice)
2. **Sector level** technical influence in practice at WESSP/WABES level (i.e. knowledge contributing to dispersed change in practice)
3. **Global level** through researcher knowledge informing policy processes (i.e. knowledge contributing to policy model)

In each of these situations, there are many internal, external factors and conditions which might lead to impact – including a range of collaborating partners who are working to achieve the same goal. The extent to which Eawag plays a more leading role or takes part in the change (i.e. as one of the many stakeholders that contribute to the change) varies.

In this **first situation (local/national)**, impact is direct and likely to be achieved in collaboration (or indirect collaboration) with different stakeholders and their activities. The change could be achieved at the community level (village) or district level, and then change could conceivably spread to the national level through a nationally adopted guideline or change in policy. It must be noted that in this case, the research would be one part of a highly iterative process, that might take a long time to manifest (potentially decades). The research would need to be conducted with reputable institutions and connected to governments and policy-makers who can make a difference. Impact here is also not achieved directly from SDC support.

Our understanding is that the largest proportion of WESSP and WABES activities are focussed at the first (country) level. Here, the main target audiences of the research programmes are local experts (practitioners), decision-makers, and policymakers. Efforts are made to influence the implementation and

steering of development to benefit the most vulnerable and work with project officers/decision-makers from national and international development agencies who are involved in the design of programme infrastructure and development projects, or the setting of national, regional, and global agendas.

In the **second situation (sector level)**, influence in practice could be achieved through Eawag's staff (mainly research theme leads) extensive practitioner focussed networks in the WASH sector, such as Aguasan; and the development of technical guidelines/toolkits which are disseminated through the sector. Impact could then be achieved through influencing implementing partners to change their practices, which then improve the delivery of WASH services. These then have the potential to be extrapolated and spread to other countries of operation, potentially influencing other partners as well. This type of impact is focussed on networks in Switzerland, but as Eawag collaborates widely in varied ways (e.g. UNHCR, UNICEF etc.) this is likely to be broader.

In the **third situation (global level)**, impact could be achieved through the researcher's time (theme leads) spent on global level initiatives. A continuous dialogue with global policymakers and strong ongoing relationships built on trust allow the researchers to contribute to global level publications. Activities mentioned by theme leads include serving on panels (i.e. the Research and Learning Constituency of SWA), contributing to global forums (e.g. GAP (Groundwater Assessment Platform) group contributing to the World Water Quality Forum through UNEP), or co-writing or contributing to global publications (e.g. the WHO guideline on Sanitation and Health). These activities do not contribute to impact on their own but form part of a wider strategy that has a global impact on policies. As described by one key informant, those focused on engaging global movements need to ensure they are committed to seeking to influence the influencers over the longer term, rather than engaging directly with decision-makers on specific issues to achieve global level impacts.

The findings below follow this framework for three levels of possible impact.

In Nepal and Uganda, evidence of local to national impact is apparent, albeit limited. Impact is likely derived through building a research and evidence-based culture that supports governments to accomplish SDG goals for clean drinking water, having an impact on behaviour change and acceptance of new technology. It is too early to see impact at the community level (i.e. change in health, improvement in lives of those reached), although in Eastern Uganda (two districts) there are some initial indications.

In terms of direct impact on poverty, through life-changing benefits achieved through access to safe and sustainable WASH, some limited direct impact has been observed. For instance, in two districts in Eastern Uganda, the GDM project enabled access to water and sanitation for vulnerable communities in highly water-stressed areas, due to saline groundwater. Prior to the research, the district local government did not have funding to reach the affected communities. The research on GDM led to the implementation of Automated Teller Machine (ATM) technology, a prepaid system that allowed users to use their credits to pay for water, only paying for what they needed. Uniquely, in this case, the Eawag programme paid for the capital infrastructure, instead of the research leading to awareness-raising. Figures have shown that over 16,000 people (school children and community) have been reached with this technology. The projects visited in Nepal had not yet experienced a similar level of impact, although partners expect that in the future when funding for technology is acquired (for an FSM plant), a similar impact will be achieved. However, some initial impacts had been seen in this context as Citywide Sanitation Planning (CSP) depicts the present state of faecal sludge in the city in a detailed manner. It also benefited the municipality's future planning by providing design options and land allocation strategies, thereby minimising community disputes.

The type of impact on poverty which WESSP and WABES can contribute to can be described as smaller moments of change (“micro impacts”) which, when taken together, can add up to significant influence - particularly where there is intent to scale up, at the town or district level. For instance, if only covering FSM, even intensive action in FSM will not lead to an overarching poverty reduction goal (e.g. in WABES: “water-secure world with less poverty, where people have the knowledge and capacity to develop and live healthy lives under hygienic conditions with adequate basic services including safe water, appropriate sanitation, waste management and measures to recover and reutilise resources”).

In the examples viewed in Nepal and Uganda, Eawag’s impact is achieved through developing “proof of concept”, as described by one interviewee. This entails developing workable solutions that can be scaled and include considerations beyond just the technologies themselves. Interviewees suggested that Eawag’s strength is more about developing systems in difficult contexts (such as the GDM in a saline and water-stressed, highly-vulnerable area in Uganda, for example). System-level solutions, such as the aggregated projects which address FSM (including distribution within a town, developing an idea of estimating qualities and quantities), are believed to have the potential for significant impact in the sector. Many other areas have been highlighted by interviewees including the behaviour change models, and geospatial modelling work.

The other area of impact is in how Eawag works with local stakeholders (described as “walking the journey with partners”) to understand the complex problem. Appropriate solutions are then developed (and this understanding supporting partners’ interactions with national decision-makers and policymakers) and handed over to competent partners so the interventions can be continued.

When the focus is on the national level, there is a case where Eawag’s research has been a trigger for national action. The case in Pakistan describes how published research data was picked up by the global media, leading to national action. More broadly, WESSP and WABES outputs tend to be discrete and do not confer themselves to influence national policy or practice in a widespread way.

At WESSP/WABES level, research projects are aggregated at the global level under research leads. Research projects have not necessarily been drawn together at the national level. For instance, in Uganda it was observed that research has been at times fragmented between institutions, researchers and partners which makes it difficult to amalgamate their overall impact or connectedness.

While the ET has not been able to follow every line of enquiry, the GAP project (GCM or Geospatial Contaminant Mapping group) provides an example of research leading to national level change. The research was based on groundwater modelling maps (currently over 600,000 data points) of geogenic contamination of groundwater. WABES funded the dissemination activities that followed the mapping (which took place prior to WABES). There is evidence that maps have motivated action at a high level that could potentially influence resource allocation in the future. A study published in Science Advances ‘Extensive arsenic contamination in high-pH unconfined aquifers in the Indus valley’ attracted attention, specifically the statement that 50 million people that rely on groundwater for drinking, agriculture, and other purposes are at risk. The study led to significant media attention (rated on Alimetric at 649) and Eawag researchers were interviewed on various well known global and national news outlets (e.g. CNN, BBC, the Washington Post). This publicity sparked debate, which then led to action: the Supreme Court took up the results and prompted a special WHO envoy to Pakistan to help evaluate and manage arsenic levels in drinking water and the resulting health impacts. The Pakistan government agreed to launch a national action plan and countrywide survey with WHO. Earlier to this, the groundwater maps were also published in a World Bank Report (Groundwater in Pakistan Indus Basin), further showing uptake amongst the WASH

sector in Pakistan. Although the Indus study largely started before WABES began, the dissemination activities have shown significant impact.

The mapping has also led to some influence at the global level, through leading to Eawag's involvement in the World Water Quality Forum (with UNEP), and the World Water Quality Alliance (WWQA), where they have input to global reports. The data was also incorporated into a global prediction map, which was presented at the UN Environment Assembly.

Whilst lines of research to impact can be hypothetical at the sector level, there is convincing evidence that Eawag has influenced the practice of its partners in key areas. Eawag's co-generation of research mechanisms with diverse stakeholders gives confidence that impact could occur at the wider WASH level. Impacts are also discernible from the WABES e-learning activities, leading to enhanced ownership and empowerment. Approaches to learning and capacity building are seen to be a strength of Eawag

Limitations on the evaluation have meant that it is difficult to determine the extent to which sector level influence occurs. Additionally, the fact that WESSP and WABES operate as a collection of research projects means that we could not determine impact at the WESSP/WABES level. However, it is highly evident that Eawag, particularly through the research theme leads, is able to draw on its wide network to influence practitioner organisations, which then helps better impact to be achieved on the ground. Key informants have mentioned many areas in which this occurs, such as:

- A focus on in-depth baseline periods and collecting evidence to design better programmes.
- Concerted efforts to understand communities before developing action.
- Development of practical guidelines
- E-learning practices (Eawag's MOOCs were mentioned in many interviews)

As one key informant described: "Before we were going at things a bit blindly – doing the things we thought we should be doing according to the best practices. Eawag encouraged us to think about things differently and changed our fundamental approach to how we work. The nexus of research and practice is really fantastic". Another external researcher described that Eawag is "known for their quality of research ... they have always been an industry leader in terms of sharing guidance and their novelty of research". Eawag's networks at Aguasan, where they present research and drive many conversations on moving forward on SDG 6 strategies, has been highlighted as having an impact on how organisations plan programmes.

There is a high degree of agreement that Eawag is a leader in the sector as a capacity builder through their e-learning. Eawag has a wide range of methods that they deploy appropriately, including digital learning, such as the MOOCs (which are widely seen to be a success and unique to the sector), training courses, video demonstrations, and discussion forums.

Eawag is also a leader in building the capacity of South researchers (at Intern, MSc, PhD and Researcher level), described by an external as a "respectful, research ethics" approach. Their wide reach and promoting capacities of students, both North- and South-based, has been praised by sector partners. As one key informant described, "the up-and-coming WASH leaders in their countries, they're able to get research grants to develop their expertise and then they're accompanied by Eawag when they go back to their countries and are mentored and supported". Eawag is respectful of their South-based researchers and gives space for research collaboration. Students (MSc, PhD, interns), exchange between north and south in person, linking researchers from the South with Swiss researchers. An external WASH researcher suggested that Eawag's approach in inviting researchers to their headquarters, allowing them time and space to focus on their research, and not administration, is unique.

In Uganda, former students who have participated in mentorship schemes and studied PhD programmes in at Eawag has led to impact through contributing to a critical mass of national experts in water safety planning and water quality. Transfer of knowledge from interns, MSc and PhD students was confirmed in Nepal as well and has been highly valued. Through Eawag, a culture of data transfer, quality, protocols, and ethical concerns has been formed, which has aided in the development of research culture and the support of government initiatives to fulfil SDG goals for safe drinking water. The community has embraced new technologies including chlorination as a result in Nepal.

3.5 Sustainability

Sustainability: what remains/will remain after the Eawag interventions?

SUS. 1	To what extent have the Eawag programmes experiences and evidence base been captured, passed on and capitalised upon?
SUS. 2	To what extent are the benefits of the programme interventions perceived and acknowledged by the local partners and beneficiaries?

The extent to which advances in research and the generation of new knowledge have been effectively captured, shared, and capitalised on is not clear. Several examples indicate it is happening in a variety of ways, though it is hard to quantify how sustainable different initiatives have been without a more comprehensive dataset. Technical institutions have been initiated and continue to operate (e.g., in-country water quality labs), capacity building work with local groups and government that has been retained (e.g., FSM work with communities and municipalities in Nepal), technical guidance has been disseminated and utilised (e.g., via MOOCs and the sanitation technology compendium), and technical support has been provided to organisations to inform approaches to implementation (e.g. Helvetas' work on water filter preferences). In one example provided, four SDC supported students graduated with their PhDs in FSM and successfully obtained professional positions in the sector, working at Delvic and lecturing at the university.

Given the difficulties in tracking the full impact of Eawag's work, however, it is difficult to comment on the degree to which interventions they have helped pioneer are being sustained. It is also important to note that responsibility for sustainability also falls largely outside of Eawag's remit and lies more with the implementing partner they're engaged with. As Eawag works with a range of partners, including local consultants (e.g. 500B Solutions in Nepal), research institutes and government bodies (the National Water & Sewerage Corporation in Uganda), the extent to which institutions can continue supporting the interventions varies. For instance, it could be assumed that government bodies are in a better position to use the knowledge and research produced to sustain their interventions, however local NGOs and consultants may require continuous funding to follow up on interventions and continue supporting them. As one interviewee reflected, "[Eawag] is there as a partner but it's up to the ensemble of local partners and government to take things forward". The role of research is thus not intended to be sustainable in itself and is contingent on other factors, such as the quality of implementation, for sustainability to potentially be achieved.

Efforts have been made by Eawag to ensure research is relevant, fit-for-purpose, and well-disseminated to encourage uptake. Whilst the degree of influence Eawag has over the sustainability of interventions based on their research is limited, it is able to maximise the potential sustainability they could have by ensuring research conducted is rigorous, practical, and focused on utility. To this end, evidence indicates Eawag performs well, with its in-depth project start-up processes ensuring research is appropriately targeted and contextually situated (discussed further in REL 2). Second, research findings need to be clearly communicated to the relevant stakeholders. Again, evidence suggests Eawag is successful in effectively

disseminating its learning to practitioners and policymakers, increasing the likelihood of uptake and implementation (discussed further in EFE 3). Eawag is therefore proficient in maximising the potential sustainability of its work across the variables over which it can control.

Eawag's experiences and evidence are sustained in other ways, such as the network the institute cultivates through its approach to research. The research institute helps build the capacity of students around the world through its MOOCs and further education, many of whom go on to work in the water sector following graduation and continue their collaboration with Eawag (discussed further in EFI 1). One example of this can be seen in the collaboration with several of the technical themes at Eawag and 500B Solutions, a consulting firm run in Nepal by an ex-PhD student. This approach has enabled Eawag to generate a range of trusted partners, such as 500B Solutions, across different geographies that they can work with to enhance the quality of their research. This network has been self-sustaining as students have passed through Eawag and been reinforced with every study cycle over the years.

Sustainability could potentially be inhibited through the nature of research, resulting from the knowledge that staff bring, built on years of personnel experience. Eawag, like other research institutions, is dependent on the quality of its staff to drive impact and synergies at higher levels. Their reputation, skills, and networks contribute to developing innovative research ideas and understanding new developments e.g. global policy publication. It's not clear how these assets are retained when key staff leave Eawag – a problem frequently faced by organisations.

Within Nepal and Uganda, the range of research projects under WABES have built capacities and furthered technical options and planning. In Nepal, counterparts are highly aware of the benefits of CWIS Planning (WABES). Clear outcomes are observed through the municipality allocating land and showing a high degree of political will. In Tikapur and Kohalpur, water user committees, along with the municipality have clearly owned the processes of finding solutions from FSM, and capacities have been built. It is highly evident that, when talking to leaders from these groups, knowledge is fine-tuned. Finding options to support developing and financing a facility are also a top priority, as a result of the extension awareness and capacity activities. Further, authorities are looking into options to drive sustainability of a facility itself, for instance planning to produce organic manure from sludge and to ensure profitability from the sale of by-products. The municipalities are hosting discussions with different stakeholders to find solutions for financial sustainability, including subsidy models from the government and contracting models with the private sector.

In reference to a number of research projects under WABES/SMALL/MEWS in the Eastern Districts of Busia and Namayingo, Western District of Bushenyi, and Kampala Capital City indicate that the capacity of the local institutions has been built through the development of appropriate tools, frameworks and processes for water quality analysis, water safety planning, FSM, technologies and approaches for water service provision and skills transfer to local institutions and artisans. It is assumed that the respective partners and local governments will ensure the transfer of skills and integration of improved frameworks, tools and approaches in overall policy, planning and budgeting framework that guarantee long term sustainability. It remains to be seen whether this assumption can be tested and confirmed over time, otherwise, the design of future research projects could consider including outputs and outcomes on institutional integration to the extent possible.

3.6 Synergies

Synergies: are the programmes creating synergies with other interventions from Switzerland or other partners?

SYN. 1	To what extent did the programmes create synergies with or contribute to similar or larger existing initiatives (e.g. leverage of larger investments, support to ongoing activities, integration within other organisations or donors/development projects)?
SYN. 2	To what extent have the results and lessons learnt produced under the programmes been fed into the Swiss interventions in the countries of intervention?
SYN. 3	To what extent are Eawag programmes aligned with national priorities and policies of partner countries and partner institutions (including other donors) and do the actions of Eawag's complement such policies/plans?
SYN. 4	To what extent are Eawag programme interventions coordinated with other project/programmes (outside the programme) in the concerted concerned sector and are they complementary?

Working in synergy with similar and/or existing initiatives is ingrained in how the WABES programmes and, to a lesser extent, WESSP programmes work. This is partly due to the timeframes of funding and that research projects are co-funded. SDC's funding has allowed for research to be applied. Eawag has an agile way of drawing on complex networks of North and South based partners, students, and collaborators.

Thematic leads have agreed that the financial inputs of SDC have allowed research to reach a wider audience (for instance through guidelines, policy publications), to make contact with local or national policymakers/practitioners to encourage more widespread adoption. They have also enabled research engagement with important sector actors.

All WESSP and WABES activities are co-funded, and SDC contributions (35-40%) ensure that research is synergised with other donors' (sources of funding) strategies, and thus other donors' requirements to fund development projects. A number of examples were related, where projects were able to leverage other investments. An example is the Volaser tool (SESP, WABES), where the World Bank put in additional money to add additional layers, such as a topping up substation. Another example is under WESSP, where the WARM project in Nepal (now known as REACH, Water Supply and Treatment (WST) theme) is only 20% funded by SDC. Partner Helvetas brought their own co-funding to the project however, additional funding was later secured from a larger donor. Field research activities were leveraged to win a seed grant from the REACH catalyst grants (funded by the Department for International Development, now the Foreign Commonwealth Development Office), to expand water quality monitoring capacity around the WARM service region, including solar-powered laboratories in Dullu municipality. In this sense, the networks, partners, and previous research in Nepal have been built into developing a larger research programme.

Eawag's work with students has been identified across WESSP and WABES as an important factor in building high quality and diverse research. Much of Eawag's co-funding to WESSP and WABES is provided through their student engagement. The EPP fellowship programme (which has hosted over 100 students) is part of their education mandate, and many of the students doing their PhDs in Switzerland are able to synergise their research with WESSP and WABES programmes. It is difficult to describe how the complex student networks synergise with WESSP and WABES – South-based partners often host students' research, and partners are often former students themselves. In Uganda, through the SMALL project, it was observed that Eawag students complemented ongoing research on water quality and treatment, working alongside utilities and helping them to "explore better ways of doing things" as described by a former Branch Manager of the National Water and Sewerage Corporation (NWSC). In this case, MSc students from Sandec helped to collect data on water quality and co-produced policy documents, a guideline and annual reports with NWSC.

In Kampala, synergies have been demonstrated in planning for improved FSM. The development of Q&Q approach was undertaken in collaboration with the Kampala Capital City Authority (KCCA). This collaboration

helped to generate learning for strengthening research processes on FSM undertaken by KCCA with funding from the Bill and Melinda Gates Foundation. In addition, FSM is currently being developed as a course for Makerere University at the undergraduate and postgraduate level.

Eawag's bottom-up, networked approach has helped create new synergies or contribute to similar, ongoing initiatives. Their e-learning initiatives have helped establish synergies with different implementing organisations working on similar themes.

Eawag, through Sandec, has a large network of research partners (>40 organisations) in the South. The ET has noted no instances of research outputs, courses, speaking engagements that were developed without some form of collaborative inputs from partners and stakeholders outside of Eawag.

Gates Foundation is a significant donor of Eawag, and as a well-known donor in sanitation and hygiene, synergies have been created with this important actor in the sector. For instance, as a result of the Gates Foundation 'Reinvented Toilet Challenge' and their interest in Community-Led Total Sanitation (CLTS) as a participatory approach, Eawag has designed research to respond to the challenge fund and contribute to the larger initiatives. Through WABES, Eawag provided its expertise in psychological ownership to the CLTS concept, including creating and disseminating a toolbox (currently in process).

The online learning activities also are completely networked and show synergies with other ongoing, larger initiatives (external and internal to Eawag), serving as a basis for ongoing networking for Eawag and its partners. The e-learning programme has led to numerous interactions between students (who make contact with Eawag through the MOOC series), practitioners in many different countries, and Eawag and its partners – further creating new synergies. For instance, the MOOC course took place through new platforms such as Waste Wise City Programme UN-Habitat. Another example is the workshop 'Introduction to Faecal Sludge Management' was developed and delivered in five countries to practitioners in the field (Tanzania, Malawi, South Africa, Canada, USA) along with partners (World Bank, CAWST, BORDA). The World Bank had contacted Eawag about its sanitation e-learning series, asking to add modules on sanitation financing, to support World Bank programming.

The transfer of lessons to other Swiss interventions at the country level does not happen directly, nor systematically. The transfer appears to happen more systematically through connections at the Switzerland level – via communities of practice and researcher-advisor networks. More widely, in SDC, better synergies could be built.

In the Swiss water sector, synergies are evidence in that Eawag is a clear, and often leading collaborator recognised for their applied research and capacity building expertise. Theme leads are well-known participants in many of these platforms and are key strategic partners of GPW. Eawag is a known "Swiss water voice" and a unique partner in that they support implementation with a focus on capacities, innovation and knowledge sharing. Several interviewees discussed Eawag having significant influence in prominent Swiss water networks, providing a pragmatic and specialist voice for science and evidence base. Eawag is a key partner at Aguasan, sharing research with Swiss partners. Eawag is on the organising committee and includes their own experiences. Eawag is also a core member of the Swiss Water Partnership – "They're a constant voice and convening power". Eawag is also a contributor to SuSanA, RWSN, ResEAU.

Eawag also provides cross-institutional backstopping support to SDC.¹⁵ One example of Eawag personnel providing their expertise can be seen when SDC asked them to contribute to the World Water Forum (Dakar)

¹⁵ There are two backstopping mandates - one with Humanitarian WASH not included under WESSP or WABES; and one with GPW through WESSP

planning inputs for a Swiss village. However, more could be done to strengthen synergies and help bridge the gap between research and practical (i.e. programming) skills and support, and to communicate better the offer being provided through backstopping to those who might need support (e.g. Advisors, Projects Officers and National Project Officers or NPOs).

The countries of focus for WESSP and WABES do not significantly overlap with SDC GPW focus countries, which limits the scope for potential transfer. Where an overlap between the SDC mandate and research exists, integration of lessons into other Swiss interventions is not clear. Disseminating lessons across the Swiss portfolio in-country is not always perceived as a priority.

There are 24 countries where WESSP and WABES operate, with only 8 of them having an SDC presence. There is a concentration (i.e. a larger number of research projects taking place) in a smaller number of countries, such as Uganda, Nepal, Tanzania, and India. Of these, SDC has an office in Nepal, which is not WASH focussed, as WASH is not part of the Swiss country strategy. As many of the research projects are taking place in offices where there is no SDC presence, or where there is no Swiss WASH strategy, many of the projects are overseen directly by GPW. Several interviewees suggested that GPW water can be disconnected from field offices and that this perception can limit the uptake of lessons in-country. Another belief is that Eawag's implementing partners (often organisations who are based in the country of research) should transfer lessons, though there is no clear method of how this could be achieved currently.

In countries where there has been an SDC office, project lessons are not necessarily integrated into the Swiss Cooperation Strategy. In Nepal, the current Swiss Cooperation Strategy (2018-2021) focuses on federal state-building, employment, and safe migration. However, SDC in Peru implements projects under three programmes, including Global Programme Water. Issues in both country situations have included limitations on resources and staffing of the Embassy of Switzerland (particularly staff with technical expertise in WASH, meaning not all projects are monitored and thus lessons transferred) and a perception that in some cases, Eawag programmes are planned at Switzerland level, inhibiting motivation to take up the transfer of lessons in-country. Another factor derives from the nature of research projects (in comparison to normal development programmes); the scope of activities can seem "small" in scope and specific in theme. As a result, the potential development impact can be perceived as discrete.

The SWM research projects in Peru had very positive results but as they took place in schools, the ability to influence other WASH programmes was not clear, as the country programme did not immediately see the potential for transfer. In the case of Jordan, where there are no Eawag research projects but there is a strong WASH country strategy, there is no direct evidence that lessons have influenced the country implementation strategy or individual programmes, including their programming in wastewater. Capacity building of staff and partners through Eawag's online courses and resources may have influenced better programmes in an indirect way, however.

Eawag's programmes are generally, aligned with the national priorities and policies of partner countries. This ranges from highly relevant to not existing in national priorities.

For this finding, the ET has looked to the examples of Nepal and Uganda, and to a lesser extent, Peru. In the example of Nepal, the workaround for FSM is completely aligned with national priorities. The government of Nepal has declared Nepal as an Open Defecation Free (ODF) zone and is putting up significant effort to help households to build toilets, however sustaining ODF, particularly in terms of FSM, remains a big challenge. Currently, the majority of the latrines are pit latrines, though there is no future planning, as after 3-4 years the pits will be full and FSM will be needed. Currently, most FS collected mechanically is disposed haphazardly into water bodies in the absence of a treatment facility which poses health hazards to affected

communities. The government of Nepal has identified FSM as a major issue to address, showing very strong synergies with Eawag's key areas of focus.

In Uganda, the FSM research is in line with the Kampala Sanitation Improvement and Financing Strategy, designed by Kampala Capital City Authority with a vision of ensuring a clean, vibrant and sustainable city in collaboration with National Water and Sewerage Corporation and its key partners such as GIZ and the Ministry of Water and Environment. The national situation demands an increase in FS and wastewater treatment capacity due to increasing demands. In addition, the water quality analysis and water safety planning research undertaken by National Water and Sewerage Corporation in Bushenyi-Ishaka Municipality aligns to the Water Quality Monitoring Strategy and Water Supply Stabilisation Plan of NWSC as well as the National Water Policy and Vision 2040 that provides for access to safe water for all Ugandans.

In Peru, SWM activities are seen to be highly aligned. This is due, in part, because a significant partner (Ciudad Saludable) had direct links to the Ministry of Education and Ministry of Environment, allowing for strong alignment with national priorities. A contrasting example was given in Burkina Faso, where there are many other development challenges, and waste management (including the need to recycle waste) is not a key national priority. Despite this, there are clear needs on the ground.

There are good examples of WESSP and WABES outputs being coordinated and complementing other global WASH sector initiatives. Flexibility and agility in changing course, in part allowed by SDC, has allowed for complementarity. However, as WESSP and WABES are not very distinct at the programme level, research staff have needed to work adaptively.

WESSP and WABES as research programmes are not well known globally as distinct research programmes, although their research themes are generally considered WASH sector priorities. Whilst research theme leads coordinate their work, it is generally accepted that more could be done to draw out commonalities and lessons at the meta-level.

Despite this, WESSP and WABES have been able to influence and synergise with various initiatives within the global WASH sector. Profiles of research leads and staff and their capacity to maintain networks contribute to this. Eawag has also shown they have adapted their research during the implementing period to keep in line with the sector-level strategy. An example of this is shown in WABES through the SESP research, originally in the proposal and logframe, based on "city sanitation planning". Staff observed shifting paradigms in the sector and, during this period, re-aligned their research under the frame of "Citywide Sanitation Planning" or CWIS. Eawag has kept pace with the wider sector in this area of growing influence, for instance, through collaborating with the World Bank on a Frontiers Special Issue titled 'City-Wide Sanitation: The Urban Sustainability Challenge' and a UNDP Policy Brief (CWIS as a public approach).

3.7 Equity

Equity: are the programmes inclusive to vulnerable groups?

EQI. 1	To what extent have the programmes made appropriate efforts to include vulnerable groups into implementation or collaboration plans and ensured non-discrimination? (e.g. women's groups, the poor and most marginalised, disability, sexual orientation)
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Available evidence suggests Eawag make efforts to be inclusive to vulnerable groups as appropriate to their work. From an organisational perspective, Eawag employs an equitable and inclusive approach to the way it operates. For example, there is a clear emphasis on providing greater access to students from developing countries through initiatives such as the EPP, as well as remote learning via MOOCs. Building the

capacity of students in this respect helps empower researchers from LMICs and can lead to continued collaboration post-graduation as outlined in other sections (see SUS 1 and EFI 1). Given that Eawag focuses on research and does not implement development interventions themselves, the question of equity in their work is arguably less relevant than it would be for the implementing partners they collaborate with. As far as the research design is concerned, almost all research groups at Eawag are technically focused, which again potentially limits the relevancy of equity considerations here.

4 Conclusions and lessons learned

1. **Identifying knowledge gaps and drawing out critical research questions that can address these is key in driving the sector forward.** Eawag has demonstrated their excellence in this regard and has not shied away from tackling difficult problems in complex situations, such as their work in understanding the long-term viability of water schemes in otherwise mission impossible circumstances. The process of identifying knowledge gaps has been done through an ongoing process of networking with WASH partners in Switzerland (e.g. Aguasan) and at the international level and working alongside its diverse network of South-based partners.
2. **Taking time in the design and set-up phase of projects leads to stronger research.** There appears to be a clear correlation between higher quality research outputs and investments in in-depth processes at the start of projects – ensuring the right partners, capabilities, and expertise are engaged, needs are carefully targeted, and interventions/approaches are appropriate for the context. This is a clear strength of Eawag and an important sector-level lesson, where many partners are moving from basic services to safely managed services. As a result, this process of developing a sound understanding of the context to set the scene for developing appropriate solutions (alongside building the capacity of partners to make the best use of data and evidence), is a real asset for more appropriate, relevant, and effective programmes in difficult contexts.
3. **Being perceived as a group of academics can hinder Eawag's support and limit the transferability of lessons in countries of Swiss intervention. Building linkages across sectors is important to maximise the impact research can have.** Eawag has proven to be a key contributor to WASH knowledge and is highly valued within the sector, particularly among Swiss partners. The data suggests that those outside the sector can be somewhat ambivalent, however. Seeking out cross-sectoral synergies with other organisations can lead to wider and greater opportunities. Being clearer and upfront about the “bigger picture” beyond the discrete research, and how projects will be synergised with building knowledge more widely in the WASH sector (i.e. building lessons at the meta-level) can also help to improve buy-in from different groups. Within the WASH sector, Eawag has improved buy-in where they are providing a clear service as a result of the research (more clearly explained in point 6, below).
4. **Having a strong and live network that is continually nurtured is key to supporting and managing successful research activities.** Eawag's approach to engaging new and existing sector professionals from across the world in their academic activities serves to both 1) strengthen the quality of the research conducted, and 2) expand the network as Eawag alumni take on roles across the sector. This model has been implemented over many years and has enabled Eawag to cultivate a strong network of trusted partners, with ex-students featuring in government ministries, large and small-scale organisations, other academic institutions, and so on. Having a strong base of individuals and organisations that Eawag can rely on in-country also proved key in limiting the negative impact COVID-19 had on planned activities.

5. ***Investing in effective research and learning dissemination greatly enhances the likelihood of impact further down the causal chain.*** Whilst Eawag have limited control over the second and third aspects of the ‘research to policy to impact action’ evaluation focus, making the first aspect as accessible and widely shared as possible will increase its potential reach. This has been achieved in two clear ways, 1) strong engagement with practitioners and policymakers, and 2) working with bigger actors in the sector to share learning. One example of this can be seen in the collaboration with the World Bank, who contributed modules on sanitation to the MOOCs, bringing in a wider audience and lending credibility to the course.
6. ***Having a specific and unique offer (i.e. a defined package of support) in digital learning and in synthesising technological approaches across portfolios (i.e. through the Sanitation Compendium) has raised the profile of Eawag in the sector, strengthening Swiss voice internationally.*** Eawag has several unique offerings for the WASH sector and is generally known for its high-quality research. The services it provides are less widely known, however. Much of its research is disseminated through its diverse range of digital learning methods including MOOCs, videos, and small private online courses (SPOCs). At the sector level, Eawag is also known for its syntheses of technological approaches, clearly prepared for uptake (i.e. in the form of guidance documents, with the Sanitation Compendium the most well-known example). Meta-level syntheses, which summarise learning and synergies across the research portfolio are critical to promoting Eawag’s reputation in research excellence. It appears that having these services available can serve as a “vehicle” to drive wider dissemination of its research, and also raises the profile of Eawag as a leader in research and promoting knowledge in the sector.
7. ***The impacts of influencing policy from high quality, relevant research cannot be assumed. Partners must be equipped to be part of a wider process of engaging with decision-makers and networking with other partners/agents of change¹⁶.*** In-country, Eawag has been strong in working with partners to develop research, appropriate solutions, and synthesise in-country experiences. However, for these processes to influence wider policy changes, particularly changes at the national level, partners must be equipped to engage in often long-term processes of engaging with decision-makers (informally and formally). This includes working with other agents of change which includes organisations working in similar themes. Extensive time, expertise, and financial support is needed to convene these processes to create awareness and support decision-makers to define change. Unless programmes (i.e. WESSP and WABES) have a specific Theory of Change on how this will happen, and have the resources to support processes, influencing policy can be assumed or may not happen as expected.

5 Recommendations

Relevance

1. **In planning future programmes, relevance could be enhanced by setting out the logic between individual research projects planned, their link to contributing to thematic areas of focus, and the “practitioner” target audiences of research outputs.**

This could be achieved through developing a Theory of Change which would help to set out the different components necessary to achieve larger impacts, beyond the projects themselves, either at the national level or sub-sector level (i.e. FSM level). This would include a process of outlining the other factors which

¹⁶ A person or organisation who sees and defines a problem that needs change, and then take a series of actions to instigate change.

need to be in place and are not considered to be part of the intervention (this could include markets, livelihoods, areas of focus that are not Eawag's strength and require large inputs from other stakeholders who might not be under the project). Projects that are experimental and do not aim to achieve wider change should be specified and communicated in such a way when findings are captured.

In most cases, research outputs of WESSP and WABES focus on the development of guidelines, tools and technical/management solutions. The interventions themselves are therefore not designed and WESSP and WABES do not primarily aim to meet needs at the municipality level or to catalyse necessary linkages where research projects take place.

Effectiveness

- 2. The pathways of research to impact can be a complex process to follow. Through focusing on outcome level activities in a small number of contexts, where larger investments through WESSP/WABES have been made (i.e. where there are multiple research projects taking place in a certain theme), a better basis for policy and practice change could be provided. Focussing on a small number of contexts could also allow greater support to be given to partners and their continued engagement in these processes.**

A focus on outcome level activities and the critical knowledge gaps, rather than individual research projects in a smaller number of contexts, would help achieve greater effectiveness in changes in policy and practice. The example of Tikapur, where a large investment has been made through WESSP/WABES in a relatively small context, is a prime example of how more attention to potential policy opportunities can pave the way for influence over processes. Eawag could better develop plans, on how broad key messages have emerged, by working across multiple projects and multiple partners to understand how learning from the research could be leveraged in pursuit of policy change, and ultimately greater impact. Partners could be better equipped to engage with other stakeholders with shared agendas.

It should be recognised that Eawag is strong at engaging its research with users and producing tailored, relevant research products, appropriate for the context, therefore this is not a highly lacking area. Instead, there is considerable knowledge available on the conceptual underpinnings of achieving research impact and more could be done to connect promising research to knowledge brokers – the agents who disseminate knowledge to the audience, although it is accepted that at the country-level, Eawag would be reliant on their partners to do this, even though they may no longer be funded to disseminate their research. Potentially, a research follow up phase could focus on supporting processes to influence national action informed by a comprehensive research into use plan.

Efficiency

- 3. Recent experiences from WABES indicate that four years for a programme is the ideal length for a funding cycle.**

Reflections on optimal periods reveal that three years is too short to allow for a sufficient time investment into certain topics that require more depth. On the other hand, programmes that exceed four years would make planning around staff personnel changes problematic, particularly for more senior members looking to retire at a convenient juncture. It is therefore suggested that the four-year approach that was utilised in WABES phase I is continued into WABES phase 2.

- 4. More data should be collected on the MOOCs to better understand the impact they are having.**

Whilst some data points have been provided as part of the evaluation, various aspects are currently absent and could be collected to provide interesting insights. For example:

- The profiles of each student (location, employment status, wealth quintile, gender etc.) and how they have applied their learning.
- % of MOOC students that go on to work in the WASH sector.
- % of MOOC students that go on to enrol at Eawag / % of Eawag students who first connected with the institute through MOOCs.

Understanding who is using the MOOCs and for what purposes would provide useful guidance on how they can be potentially further developed to improve impact. This is particularly pertinent at the moment, given the heightened levels of online engagement and learning as a result of COVID-19 restrictions.

Impact

5. Develop and frame a new narrative on impact from research through designing tools that adequately monitor impact from WESSP and WABES. This should include the connections made from working in collaboration across networks and themes to lead to impact at the national and global levels. At the national level, aggregation is needed to leverage targeted engagement initiatives.

It is understood that measuring impact of applied research is more complex than for development projects. It is therefore suggested that research programmes should not be focussed on the “reduction of poverty” impact – as research contribution to the reduction in poverty is very indirect. Instead, at the outcome level, WESSP and WABES should link up research with demands for evidence, contributing to gaps in knowledge, building networks, and building in-country capacities. This process should build on the concept of knowledge and its relationship between evidence, policy and practice, and the actions that are needed to support decision-makers to use knowledge. It is suggested that this new narrative framework could be developed in two to three targeted engagement initiatives / thematic areas (i.e. FSM in small towns), where an impact pathway could be developed, mapping out potential success factors, working across themes/teams, and connecting local research to global advocacy.

Recognising that it is unlikely that discrete research projects will create impact, and that integrated, collaborative approaches are required to effect change, a new narrative for each of the 2-3 themes could include different dimensions, such as:

- Building a structure or Theory of Change for applied research as a process to achieve impact, to join up opportunities.
- Identifying the audiences for research, the channels through which they intend to engage with these audiences and, crucially, why they are central to the delivery of research that is applicable to policy.
- Identifying how the research will build on or be part of existing networks. This includes identifying potential knowledge brokers who can disseminate and promote the evidence produced at the national level, for instance at national level workshops.
- Identifying how WESSP and WABES will supply evidence where there is a demand for it. i.e. locate places where it is likely that evidence is needed to motivate political will and the other factors outside WESSP/WABES scope of influence.
- Identifying global networking and knowledge sharing that might result from high-quality research and findings. This could be connected to Eawag’s strong work in e-learning and guideline development.

The Theory of Change process should identify possible **success factors** that could connect the research to national change by engaging the stakeholders that the research hopes to influence with the evidence. This could include looking at the following possibilities:

- Synthesising and framing research (often with synthesised data such as in the GCM project described under the Impact section) with illustrative cases of a problem being studied.
- Looking into the ways that stakeholders can be reached. This could include media (global or national), through existing government-led meetings/workshops or other events; or through other (informal or formal) connections.
- Developing “impact stories” to show how the change took place locally, drawing out the success factors that could be spread nationally.

Eawag has a strong networked approach on several key topics (i.e. bringing together diverse groups of researchers and policy actors, as well as community perspectives to bring different perspectives to dialogue) and should continue such actions.

Identifying key findings and messages as projects develop (coordinating targeted engagement initiatives) across themes could help with the strategic dissemination of learning. Attention should be given to locations where impact could be achieved and where the results are of global interest. This entails making note of projects that cohere around particular issues, even if they are geographically and methodologically diverse, and facilitating collective engagement with policy and practice. The example of Tikapur, where several projects have taken place, is an example of this.

Multiple research investments across geographies and topics are regarded as providing a more rigorous and ultimately relevant evidence base. However, working across multiple projects in pursuit of impact is not without its risks and challenges. A widely held challenge is that multiple projects, despite sharing some methodological and thematic similarities, may not always add up to more than the sum of their parts. In other words, they may not cohere around an identifiable policy frame or problem. Geographic diversity, the range of research questions, and the focus on particular contexts may make it difficult to identify what they have to offer policymakers. This relates to the challenge observed earlier, around research evidence not in itself providing compelling narratives that support changes of direction in policy and practice. Furthermore, a group of projects cannot claim to be speaking on behalf of the wider literature, and there will inevitably be evidence gaps.

Sustainability

- 6. Eawag should focus its support to sustainability broadly within the WASH sector, by promoting sustainability from a capacity development perspective, through mainstreaming its strengths within the sector.**

The WASH sector’s approach to sustainability tends to be associated with the sustainability of infrastructure and the systems (financial, management level, technical) that are needed to sustain WASH services. There are positive lessons from Eawag’s research that could be drawn out more broadly that could contribute to the sector, on how building capacities of local and national actors (i.e. government partners, research institutes) to use knowledge, to scale up Sustainable Development Goal (SDG) 6.

Synergies

- 7. As WABES or WESSP as stand-alone programmes are not well known globally, synergies at the programme level and by location should be considered to consolidate lessons from research. This could also improve Swiss visibility.**

Although it is a challenge to combine research projects/themes and draw out synergies, there have been several commonalities relevant for the WASH sector at the meta-level. WESSP, in particular, has operated through multiple phases and now has decades of experience. Lessons should continue to be drawn at this

level, by consolidating findings from discrete projects. As an example, developing “lessons learned from WESSP and WABES” summaries could help draw out relevant lessons. At the sector level, best practices on baseline/situation development and analysis could be developed from different projects. At the sub-sector level, findings in relation to city-wide wastewater treatment, household water treatment could be taken from different contexts with policy/research recommendations. In locations where a great amount of investment has been put into certain locations – where more than one programme (WESSP, WABES) and multiple research projects have been conducted (Tikapur in Nepal is an example) – context-specific lessons could be similarly drawn.

8. To better support Swiss programming, more attention should be paid to defining and communicating the support/advice that Eawag offers to its GPW staff and partners. This could include translating what support packages could be offered, and more generally to Swiss partners.

The demand for research backstopping support in programmes is likely to be low, and there may be a perception that Eawag, may not offer direct, practical support to Swiss programmes where needs are immediate. Undermining this, POs and NPOs may be reluctant to ask for advice when they are unclear on what support is being offered. It is suggested that a specific package of support could be defined, to be deployed at the inception phase in locations where new, large programmes are being initiated, and where long-term Swiss investment in WASH is being expected. SDC operates in complex situations, including protracted emergencies, and research/interpretation of data support is likely needed to initiate programmes based on evidence. Eawag could support the gathering and interpretation of data to define baselines, understanding context and building capacity of local partners and to develop appropriate solutions for the context might be useful where unique interventions are being proposed (for instance, where wastewater solutions are being introduced for the first time). The package could be followed up through short offers of technical support throughout the programme lifespan.

Equity

No recommendations have been made for this evaluation criterion.

Annex 1. List of interviewees

The complete list of interviewees consulted for input on this evaluation can be found in Table 1.

Table 1. List of interviewees

#	Name	Position	Organisation
1	Christophe Luthi	Department Head	Sandec
2	Janet Hering	Director	Eawag
3	Chris Zurbrugg	Member of Directorate, Group Lead SWM	Sandec
4	Sara Marks	Group Lead, WST	Sandec
5	Linda Strande	Group Lead, MEWS	Sandec
6	Regula Meierhofer	Group Lead, SWP	Sandec
7	Fabian Suter	Digital Learning Lead	Eawag
8	Prof. Charles Niwagaba	Researcher	Makerere University
9	Christophe Luthi & Jasmine Seggiger	Department Head and Finances	Sandec
10	Michael Berg	Department Head, W + T	Eawag
11	Ashbiek	Researcher (Citywide Sanitation)	Sandec
12	Dorothe	Researcher (SaniChoice)	Sandec
13	Andaline	Researcher (Zero Waste @ Schools)	Sandec
14	Nienke Andriessen	Project Manager, MEWS	Sandec
15	Marc Andre Buznli	Humanitarian WASH	SDC
16	Joel Podgorski	Project Coordinator, GCM	Eawag
17	Jennifer Inauen	Previous Department Head Environmental and Health Psychology (Tenure track), Eawag	University of Bern
18	Anonymous (Official)	Official	Government of Switzerland, Embassy
19	John Brogan	WASH Advisor (Eawag Advisory board)	Helvetas
20	Andrew Cotton	WASH Advisor (Eawag Advisory board)	Independent
21	Kenneth Peralta	Oficial de Programa	SDC
22	Anonymous (Senior WASH staff)	Senior position at an international WASH NGO working with national processes, Nepal	International WASH NGO
23	Pierre-Yves Pitteloud	Regional WASH Advisor	SDC
24	Katarina Charles and Saskia Nowicki	Co-Director REACH Water Security Research Programme, PostDoc Researcher	University of Oxford
25	Mingma Gyalzen Sherpa	Director	500B Solutions
26	Bhairab Rawal	Chairman Water User and Sanitation Committee, Tikapur	Water User and Sanitation Committee

27	Surya Khadaka	Project Coordinator	Lumanti
28	Purushottam Pokharel	WASH Focal Person	Kohalpur Municipality
29	Balmukunda Kunwar	R&D Specialist	Helvetas
30	Asha Bamutaze & Sauda Nabbanja	Coordinator, Civil Engineer	Appropriate Technology Centre (ATC)
31	Mugume Deo Samuel	Senior Quality Control Officer	NWSC
32	Dora Kukundakwe	Commercial Officer	NWSC
33	Henry Ouma & Kennedy Wanyama	National Director, Programme Operations Manager	Get Water Uganda
34	Christopher Kanyesigye	Manager of Research and Development	NWSC
35	Prof. Charles Niwagaba	Researcher	Makerere University

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