

“Exploring challenges in water, sanitation and hygiene”

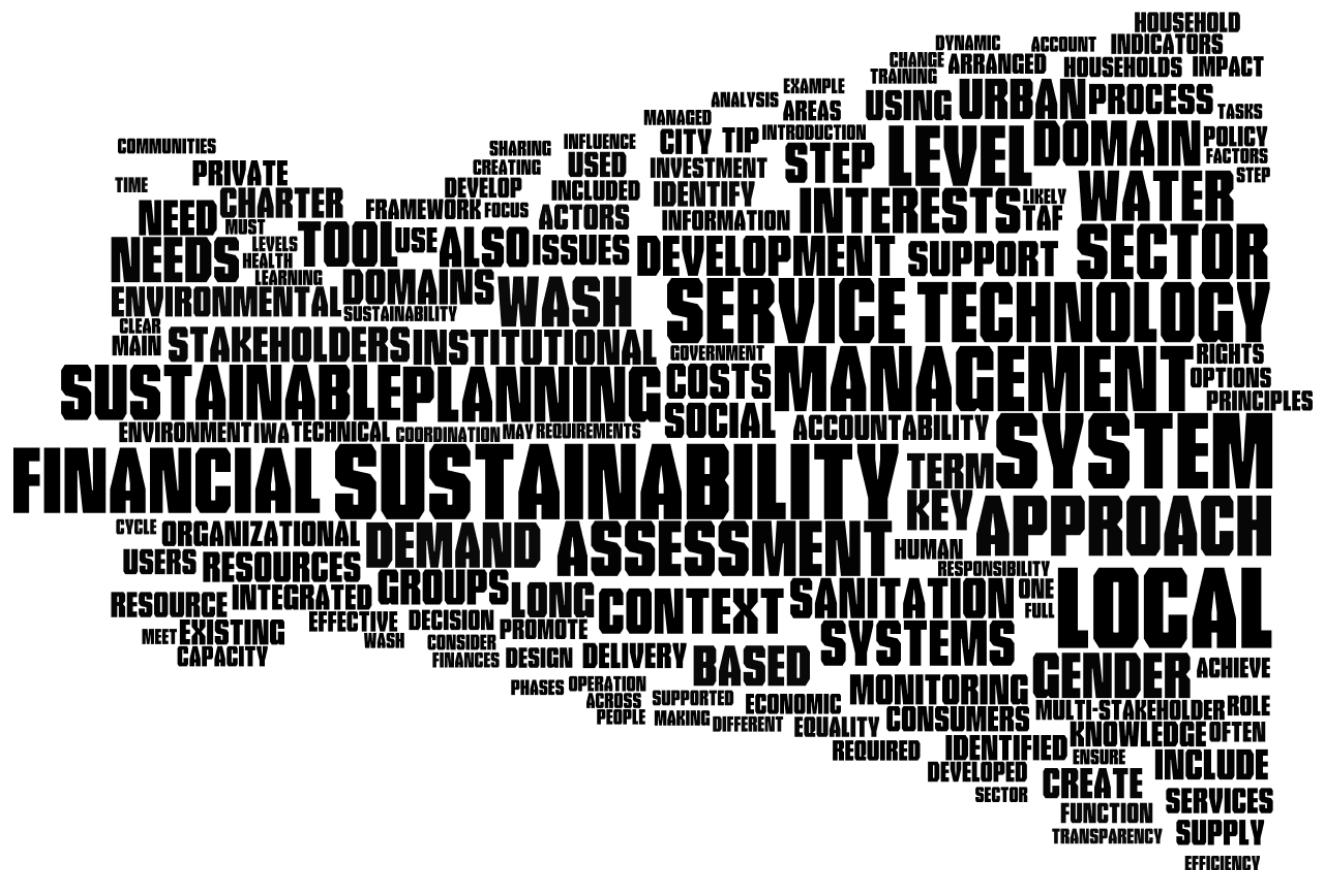


Figure 1 wordle of words in WaSH tools

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1 Introduction

The Millennium Development Goal 7 (MDG7) Target 10 is to halve the proportion of people without sustainable access to safe drinking water and basic sanitation by 2015. Over 240,000 people a day gained access to improved sanitation facilities from 1990 to 2011, despite progress, 2.5 billion in developing countries still lack access to improved sanitation facilities. To accelerate progress it is important to understand current challenges. This research was set up to examine current projects involved in water, sanitation and hygiene and find common challenges.

A question list is developed to highlight strengths and weaknesses and evaluate the success of WaSH projects. In the development of the tool several frameworks, planning programs and other tools were used. Figure 1 on the front page shows important words in all these examined documents, the size of the displayed words is proportional to presence in text. Information from all these documents was used to find key issues in WaSH projects and these were translated into criteria.

Discussion of examined documents

The description of success, and the method for measuring, can vary per tool. Many tools speak in terms of 'sustainability', FIETS, triple-S, Sustainability check from UNICEF and the sustainability charter. The TAF speaks in terms of applicability and scalability, which roughly translated means the same as sustainability. The Vienna charter has a specific definition of success and mentions 5 factors that need to be balanced to be successful. These 5 factors can be described as social, economy, technical, institutional, environment. These areas of attention can also be found in the other tools, and are then connected to their 'sustainability'. The FIETS approach uses the 5 key areas financial, institutional, environmental, technological and social. TAF uses the six dimensions social, economy, environmental, institutional, know-how/skills and technological. The sustainability check from UNICEF considers 4 indicators: institutional, social, technical and financial and the sustainability charter focuses on 5 domains: strategy & planning, governance & accountability, service delivery support, financial management & reporting and knowledge sharing. The triple-S tool has 8 main sections which do represent the same issues of financial, institutional, social, environmental and a little bit technological; however it goes deeper into the first three issues. It elaborates on the future in terms of asset management, capacity building and learning.

The reviewed tools are planning approaches, frameworks and assessment tools, but all can be used to assess WASH projects. The method for assessment is interesting; triple-S, UNICEF charter, self-assessment of sustainable WASH and TAF all use a quantitative method for evaluation. The frameworks FIETS, Vienna charter and sanitation21 are purely qualitative.

The TAF has an additional feature, in which it specifies that it uses 3 different perspectives to analyze a technology. Other tools speak in terms of incorporating the multi-stakeholder approach or in domains, but do specify how or how many.

The sanitation 21 is not just a framework; it offers a step-wise program on how to handle the planning of establishing WaSH services. This has been built on the Vienna urban charter and does answer to the previously mentioned areas of interest.

The PPA of NETSSAF was discovered at a later stage in the research and has not been included in discussion and forming of criteria. However, since it is very much in line with the other planning and framework tools expectations are that it would not have made much difference in the final result.

Although figure 1 cannot give concrete conclusions, it can give additional insight. It is seen that 'sustainability' comes out as most mentioned, as was also discussed to be the key issue for most tools. Aspects that should be made sustainable are also displayed relatively large, 'technology', 'management', 'financial', 'service', 'system' and 'social'. Other terms that pop up are 'local', which is becoming more and more a point of attention in WaSH , 'level' or 'domain', changes should be made at different/all levels of organization to be successful and 'gender', which has been recognized to be important. Another interesting aspect is the verbs that are displayed: support, learning, sharing, creating, influence, include, analyze, invest, introduce, identify, training, change, arranged, consider, making, ensure, promote, design and supply. This tells about the type of actions that are expected to be required to achieve success. And finally, words like: needs, actors, interests, approach, accountability, context, demand, groups, integrated, planning, resources and stakeholders, which tell about the necessity to align all people involved and have a common target and path.

After the examination of the different documents it is concluded they are similar in their description and goals. Aspects of all of them can give additional insight on the success of WASH projects and on the development of sustainable development of WASH. Using these documents criteria are set and translated into a questionnaire, see the appendix. The criteria are based on a combination of the 5 key principles and the principle 'management of development' which includes aspects like stakeholders, local and learning. The hierarchy of these criteria is shown in figure 2.

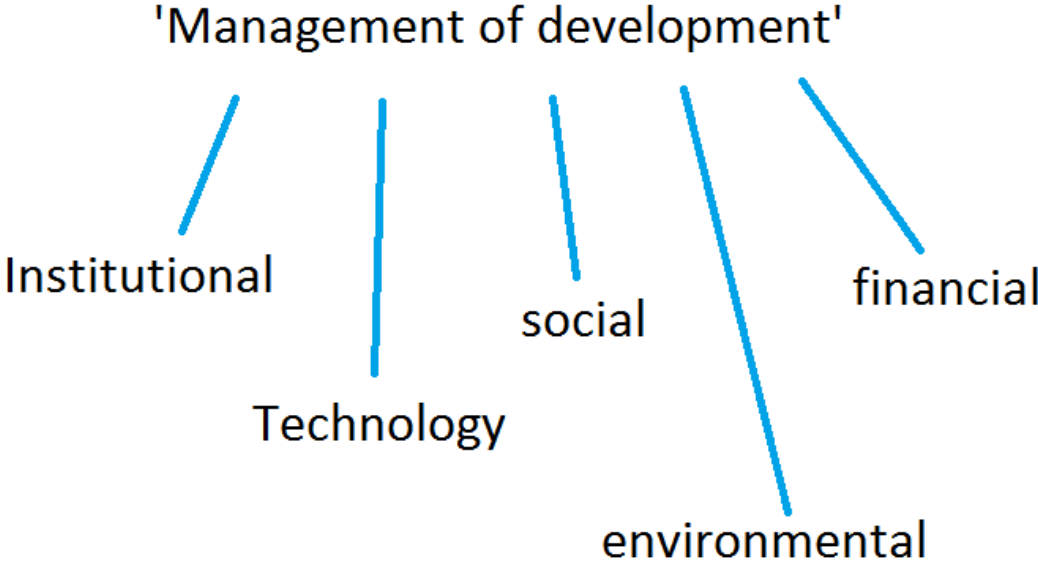


Figure 2 Hierarchy of criteria

2 Results and discussion of the interviews

In total 15 people were interviewed, originating from 6 different countries. Of these 15 interviews 14 set of scored questions were available. The scoring questions are presented by figures, averages and standard deviations.

Please give me an introduction to your WaSH initiative and explain to me what your role and vision of the final goal is.

The roles of the candidates whom participated in this research vary across the well-known stakeholder field, these include researchers, NGO's, financiers, private companies and (semi)-government.

All candidates were in some way involved in providing water and sanitation to people.

Some of the projects focused on the service chain, other projects on the combination of the service and value chain, although to what extent varied from looking at the possibilities to making it the main objective. The main region of project location was Africa, and second Asia.

The activities that were fulfilled in projects were of a much larger scope then the general roles. Terms that came up were developer, initiator, designer, watchdog, business developer, manager, catalyzing agent, promoter, communicator, supporter, match maker, value creator, and synergizing party.

Final goals were describes as no more open defecation, up-scalability, financial sustainability, simplifying integration, integration of WaSH and other developmental aspects, removing the waste from the urban area as a priority, secondary can it be used local capacity building, sustainable fecal sludge management, localized self-sufficiency and localized economy.

Management of development

It was mentioned by several candidates that the people who should be doing this, are actually not doing this. Ideally the initiative should come from local people, the local government. But the people who are initiating it are from the developed world.

This initiator has a large influence on the organization of the project on location. For example, it was mentioned that this function of organization should be combined by a local party and a party in the developed world, who will communicate often with each other. Some projects have facilitated a local organization or business that is responsible for developing the chain. Others are actively involved, or trying to be, with the already existing local parties that are responsible for water governance.

The candidates who fulfill the role of execution state that it is a balance between the natural process of development and the financial responsibilities and that indirectly the financial party is actually the one who decides how things are done.

Another interesting point is the role of private companies. To display the scope of this discussion I quote one party "It does not matter who is leading, as long as it is not a commercial company" and paraphrase another who mentions that private parties can take the biggest investment share and have the interest of protecting their raw material and the health and life quality of

their customers. This point of discussion also seems to be trending in the global water community.

Table 1 evaluation of scores to questions 1, 1.1, 2, 3 and 4.

	average	median	min	max	range	stdv	answers
1	7.285714	7.5	5	9	4	1.069045	14
1.1	7	7	4	10	6	1.683251	13
2	5.607143	6	0	10	10	2.450891	14
3	7.833333	8	5	10	5	1.642245	12
4	8.071429	8	5	10	5	1.328057	14

In figure 4 the scores to the questions on the part management of development is presented. It can be seen there is an overall tendency for high scoring. The first and fourth question almost resemble normal distribution. Questions 1.1, 2 and 3 have clear different distributions.

Question 2, about monitoring systems, has the lowest average, the largest range and the largest standard deviation. It could indicate there is a big variance on the presence and acceptability of monitoring systems.

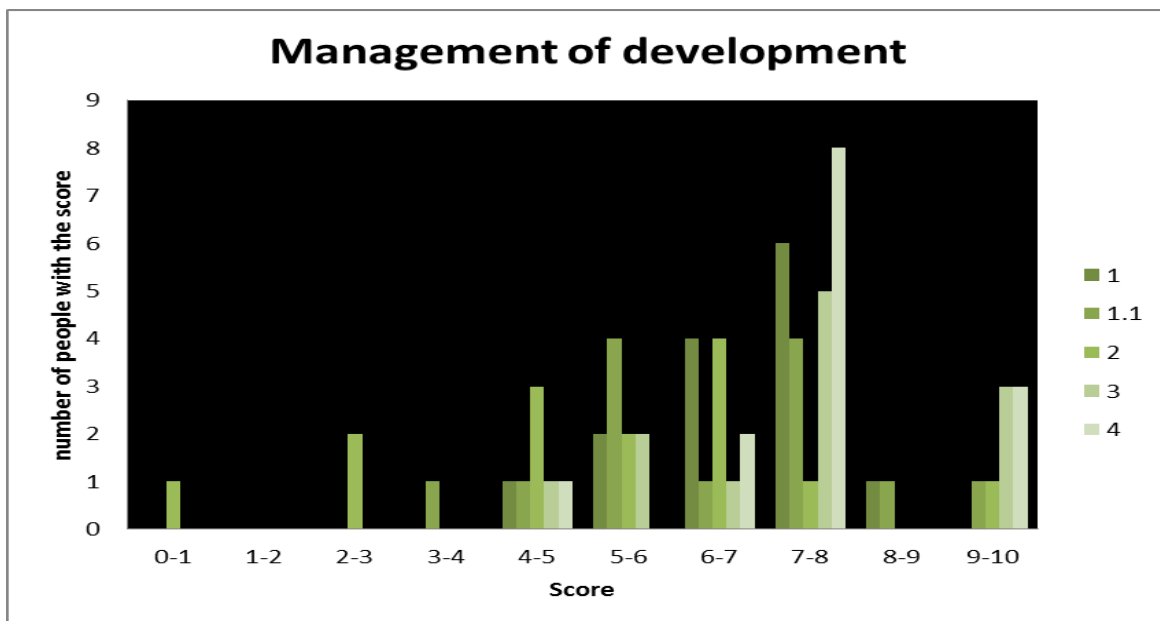


Figure 3 the scores to the principle “management of development”, on the y-axis the number of candidates with the score, and on the x-axis the score.

1. The use of a multi-stakeholder approach to organize integrated planning and to coordinate principles. 1.1 Involvement of all groups

Although all candidates are actively working with a multi-stakeholder approach, there is still some discussion and there are also difficulties in actually doing it.

First of all, not everyone agrees that “everyone” should be involved, but that the right parties should be at the table. It was stated that involving all parties in the multi-stakeholder approach

is happening in an increasing trend. But is this a positive thing? Or is it just a reflection of the criteria for funding or positive discrimination?

In the execution of the multi-stakeholder approach candidates face some difficulties, for example that this can only be done on location and it is difficult to get everyone in the same direction. Several times it was mentioned that the community or residents are not aware, not involved, or do not have a representative, and some parties are indirectly involve.

2. A monitoring system is established which leads to sector learning and increased knowledge.

It was stated that the adoption of monitoring systems is increasing. Several candidates have some form of monitoring, sometimes with indicators. However, it was also mentioned in one project that “they do not want this”. It was also mentioned that monitoring was part of the financial agreements.

3. Gender equity is included

This question raised some discussion; some candidates explicitly stated how important this was in their project, mentioned in what ways woman are involved, sometimes more than men, and also scored it very high, others mentioned this needs improvement and it is depending on what level, but there were also responses in the sense of “this is not an issue” and “it is popular”. This scale of opinions is perhaps not reflected in the scoring.

In reflection of the question it seems as though it might not be formulated in the right way, since it is on gender equity, not female empowerment, or even gender equality. In the analyzed tools gender is discussed using varies terms, neutral, equality, equity, mainstreaming. The role of gender in these projects is still to be discussed.

4. The ‘local first’ principle is included.

This was generally a point of agreement, but also challenging in implementing. It was also mentioned that “it is not always necessary”.

Technology

In general the technology part was an area of little discussion and the overall scores are relatively high. However, the meaning of the scores varies. Some candidates have not started this phase of the project yet or are in the selection phase, some use outside expertise, others have copied from previous work and there are also candidates who elaborate about the specific design and technical solutions they use. This means that some candidates have scored the questions on to what extend this is included in their design criteria and other have scored them as to what extend does this actually work in their existing system.

In table 4 and figure 5 it can be seen that technology scores quite high. Average scores are all above 7, also in the distributions are heavily drawn to the right of the graph. Question 6 and 9 have a large standard deviation since they were both given the score 0 one time.

Table 2 evaluation of scores to questions 5,6,7,8,9 and 10.

	average	median	min	max	range	stdv	answers
5	7.961538	8	5	10	5	1.737593	13
6	7.769231	8	0	10	10	2.681848	13
7	7.923077	8	6	10	4	1.705947	13
8	8.416667	8.5	6	10	4	1.443376	12
9	7.214286	8	0	10	10	2.524604	14
10	7.5	8	3	10	7	2.101587	13

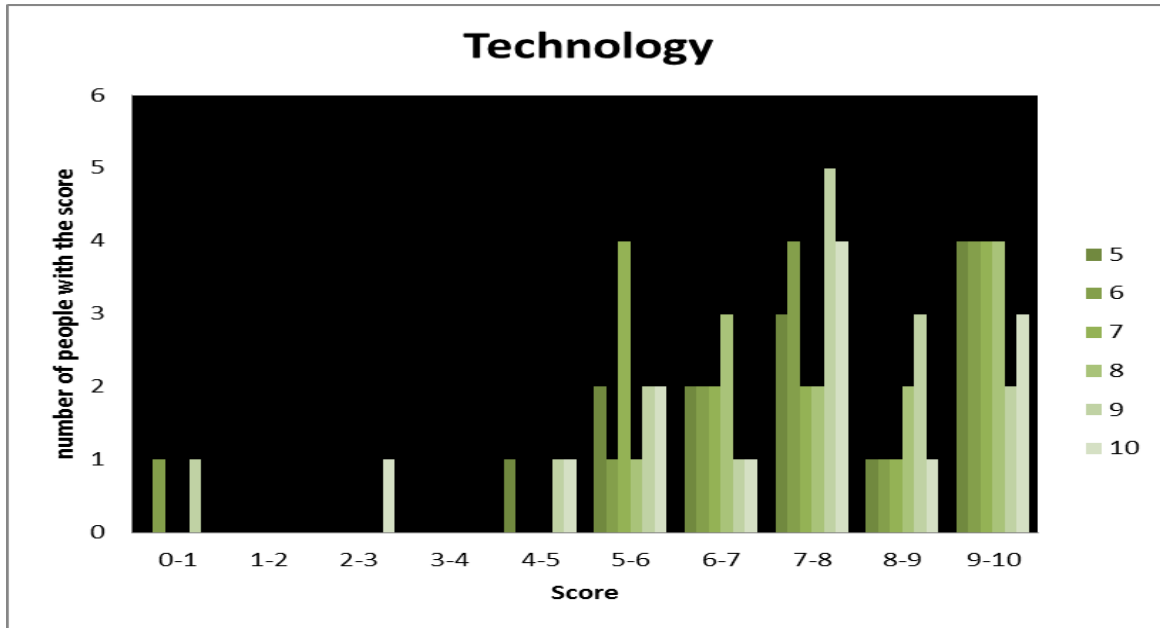


Figure 4 the scores to the principle "technology", on the y-axis the number of candidates with the score, and on the x-axis the score"

5. *Separates faeces from humans*

Most candidates answered this question with an instant yes. But when asked to score, it would lead to "what is separation?" Does a latrine separate the waste from the humans as well as a flush system with sewerage? When is it sufficiently separated? The origin of this objective lies in human health, a better question would have been "does this system take away the health risk of the waste on humans and human activity?"

6. *Practices basic hygiene*

Many projects do include at least hand washing, some go further into providing awareness programs and targeting particular audiences.

7. *Includes all domains and services all members of society*

In general candidates answer positively, in that it is available to almost everyone. The answers to this question are very much related to the financial system behind providing sanitation service. When the costs are directly given to the user the poorest members of society are

excluded. This is the case, or the expectation in several cases. There are also projects that have specifically designed their project around targeting the poorest group; other categories of targeting are children, schools and families.

8. *Allows maintenance, reparation, replacement and post-construction, and is replicable.*

This was specifically stated as a main objective by many candidates. This is of course one of the reasons why projects have failed in the past, and the fact that it has been noticed is a positive sign that there is definitely sector learning. What was also mentioned, the results of the practical implementation of this objective have not been available yet since it is a very recent topic.

9. *Flexibility*

Flexibility was answered in terms of “before installing”, and during the selection process of the technology. In projects where the treatment facility was already designed, flexibility was incorporated in terms of capacity change or waste quality change. In terms of the collection facility it was stated that the part above ground can be taken apart and relocated.

10. *Promotes financing, is affordable*

This question of course relates to the specific financial model. By some candidates this is seen as the success factor of a project. Different methods have been mentioned for making it affordable and for promoting financing. On the lowest level, people and communities, these include credit systems, loans, grouping and community investments. It was also stated in one case “people do not want to pay, since it is their right” and that affordability depends on the income (and the target group of the project). Promoting financing was described as the goal, and also questions were raised about the type of business model it should be.

Social

The social principle scores high in general, all averages are above 8, and all standard deviations are below 2. The ranges are small, question 12, about everyone’s involvement has the largest range.

Table 3 evaluation of scores to questions 11, 12, 13, 14 and 15.

	average	median	min	max	range	stdv	answers
11	8.115385	8	6	10	4	1.38675	13
12	8.178571	8.25	4	10	6	1.917602	14
13	9.214286	9.5	7	10	3	1.050902	14
14	8.25	8	6	10	4	1.484771	12
15	8.230769	8	6	10	4	1.640825	13

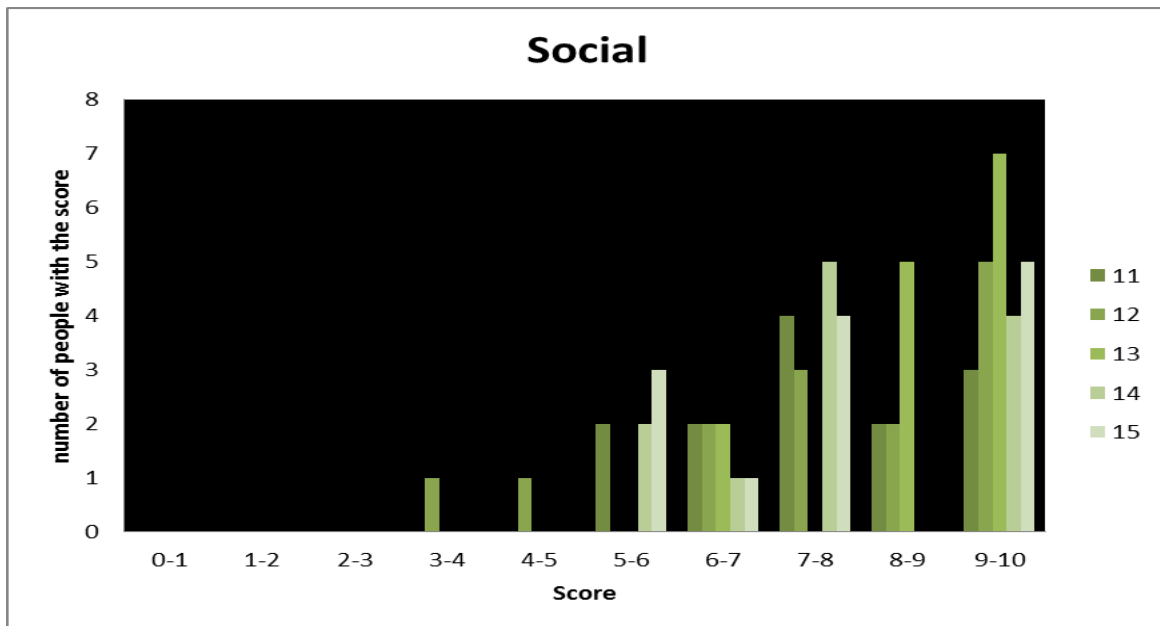


Figure 5 the scores to the principle “social”, on the y-axis the number of candidates with the score, and on the x-axis the score”

11. *Social acceptability of service offered*

Some candidates are doing or have done a market study on the types of toilet and the products from the value chain as part of the technology selection procedure, others have not. One party states that “if it is not acceptable we do not implement it”, another stated “marketing is required and acceptability of products changes with market competition”. The acceptability is embedded in the toilet culture which includes types of toilets, anal cleaning method, religion, how reachable it is and very basic things like whether or not it can be locked.

12. *Everyone’s involvement or representation,*

Generally everyone is trying to incorporate local parties as much as possible. However, occasionally you miss, and sometimes the government is not involved (well enough) or community members are not involved, however sometimes local parties are very much involved, for example local students are doing research on the project.

13. *Locals are seen as users not victims*

Not everyone agreed on the use of the word victim, and would replace it with for example beneficiary. In a way this question represents the process in which WaSH projects have gone from providing (financial) aid to trying to make an investment. But it also reflects the way local people are seen and treated in projects. For most candidates this is one of the main objectives. However, this is not always the case for local parties, for example the municipality.

14. *Gender equity*

It was mentioned by one party that this was not an issue; others explained the safer access of the toilet facility. “Woman have a place to go now.” In some projects woman are actively being

incorporated due to their role in society and families. However, in some cultural settings this can be extremely challenging. The role of woman in families can be found in the following, one person mentioned that once a toilet is build the men are done, they will not clean it once and therefore woman must be involved. It was also mentioned that this is one on the topics which is secondary for the private sector.

15. A sense of ownership and demand, self-esteem

Many candidates have described this as their vision, goal, objective or target and it is said to happen in an increasing trend. Sometimes this goal is met by groups, not individuals, and sometimes it faces difficulties, for example with the landlord.

Environment

In the category environment there is a clear difference between the first three and the last two questions. The first three are overall scored positively. The last questions, about trans-boundary issues and climate change show a big diversity in answers. It is either high or low, which perhaps reflects a disagreement on whether or not these questions are considered important.

Table 4 evaluation of scores to questions 16, 17, 18, 19 and 20.

	average	median	min	max	range	stdv	answers
16	7.642857	7.5	3	10	7	2.169975	14
17	8.107143	8	6	10	4	1.443534	14
18	8.392857	9	5	10	5	1.711708	14
19	5.708333	7	0	10	10	3.306044	12
20	4.708333	6	0	10	10	4.036528	12

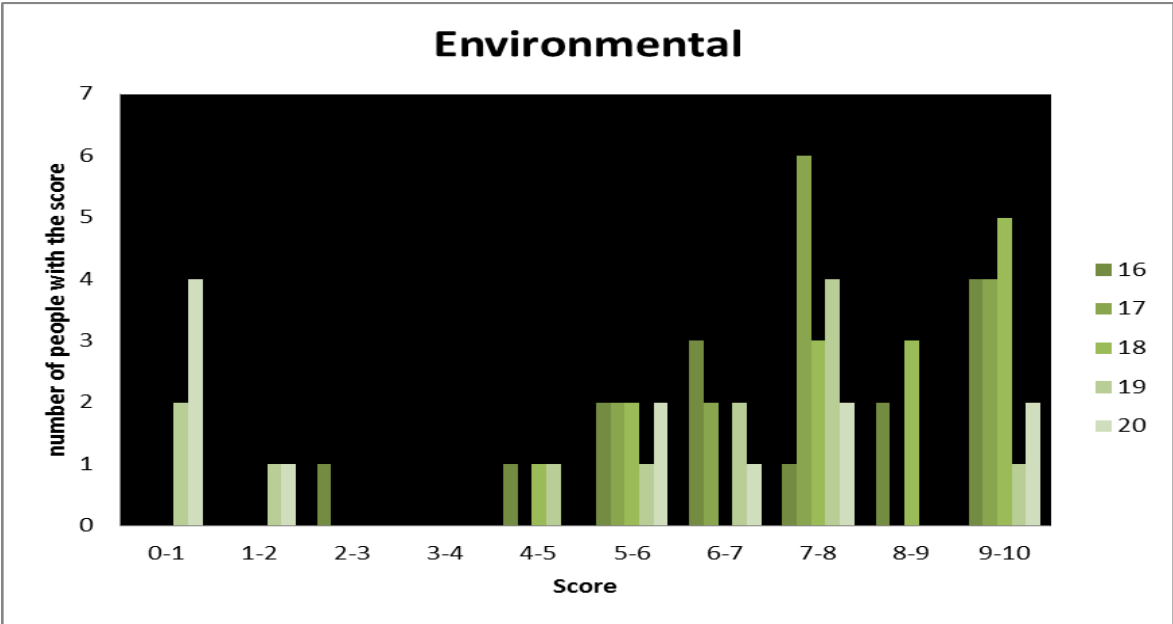


Figure 6 the scores to the principle "environment", on the y-axis the number of candidates with the score, and on the x-axis the score"

16. *The resource base, ecosystem and landscape are protected*

The protection of the groundwater was specifically mentioned by at least two candidates. It was mentioned that this goal is met when the project succeeds. In a project where the treatment was already successfully running they were monitoring quality of effluents. Also, during start ups, methane is sometimes still discharged when there is no use for it yet.

17. *Degradation is prevented*

In general this is included in most projects, but there were also comments along the line of “our system has nothing to do with this.”

18. *Management of waste, water and resources is arranged*

This was considered to be a main objective by one party. Most projects focus on sanitation, and a combination with water and other organic waste is discussed or incorporated. This topic is discussed in terms of removing waste, recycling, stopping pollution, having less human sanitation waste in the street and providing a good transport system to stop illegal dumping. It was mentioned that this is essential, and fits with the idea that WaSH should be integrated in a broader sense.

19. *Trans-boundary issues are included*

This is often not included in a direct manner. It was mentioned several times that the scale of the project means this is not an issue. In one case, it was said that indirectly the products help to improve the effect of agriculture on the environment by making more sustainable fertilization possible. In another the indirect trans-boundary were explained using nomads, and that the sanitation facilities made for them are no-one’s responsibility and therefore neglected.

20. *Climate change aspects are included*

In most projects this was not included. It is not a primary target, this will happen in the future, or it is difficult enough as it is. In one case the municipality was focused on this and in another the link between emergency WaSH and environmental disasters due to climate change was explained.

Finances

Table 5 evaluation of scores to questions 21, 22, 23, 24 and 25.

	average	median	min	max	range	stdv	answers
21	8.461538	8	6	10	4	1.450022	13
22	6.285714	6.5	0	10	10	3.123818	14
23	4.925	5.5	0	10	10	3.617414	12
24	8.658333	9.95	1	10	9	2.565668	12
25	7	8	0	10	10	3.391165	13

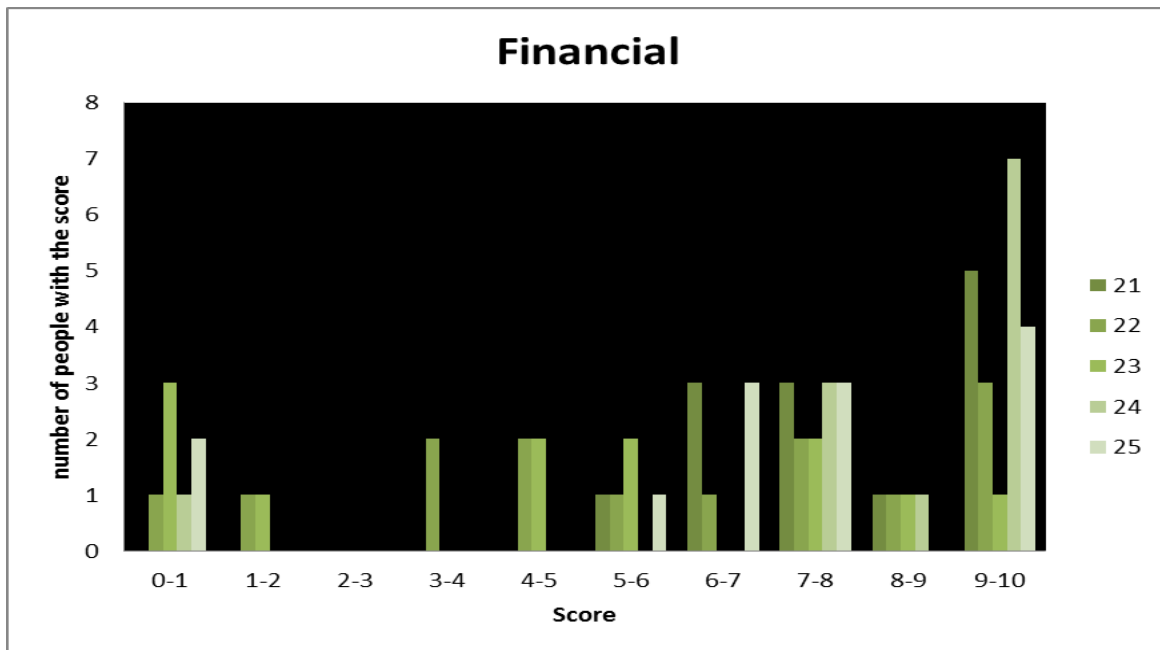


Figure 7 the scores to the principle “finances”, on the y-axis the number of candidates with the score, and on the x-axis the score”

It can be seen in the figure and the table that the diversity of answers in the principle of finances is quite large. The first question, on economic independency, was answered positively, with an average score above 8, and a distribution that resembles normality. Other questions all have large standard deviations, large ranges and several peaks in their distribution.

Several candidates discussed a financial model that includes the selling of sanitation waste in the form of useful products. In one way or the other, the income generated from these products would be used to cover the costs of sanitation. It was said that the success of this method is dependent of the location (urban/rural).

Besides the value chain there were also some projects focused on the service chain. Usually this was based on investments from the local people in their own toilet, based on loans, savings or group-financing. A sanitation service market could then arise, for example toilet distributors.

It was commented that setting up the service and value chain every step should be financially viable: capture, transport, treatment & re-use. Furthermore it was commented that “When there is a good plan, the money will come, the energy should not go to finding money.”

Another possibility is the setting up of sanitation within the existing local context of water management. It was stated that sometimes drinking water costs and sanitation costs are sometimes combined in one fee.

Initial investments can come from donors, grants, foreign governments, NGOs, private sector and others. It was mentioned that projects are strongly donor driven, and a lot of energy is put into finding finances.

On spending the money it was mentioned that we put too much money into Dutch expertise, too little in capacity building and we need to train young people.

21. Economic independency and long-term economic viability as a whole are possible, full life cycle costs and risks are included in asset management and planning

The answering to this question varied from this is the goal to this is overrated. Many candidates do see this as the goal, but it was also found to be the most challenging part. Investments cannot always be won back and often still come from external finances.

22. Funding is provided by the 'local finance first' principle

Although most candidates agreed with this, but it is easier said than done. Approval can come from higher up, it was found difficult to organize the community, there are cultural aspects, locals are afraid to take the risk and most current finances come from foreign donors. It was also noted that this "local finance first" is a little unfair, since the European systems were also paid by the governments.

23. What is the ratio public/private finance during the start phase

Most thoughts were in the sense of "you need a pre-investment". Some project used a grant, others money from the EU. Other things than money can come from locals, for example land.

24. What is the ratio public/private finance when everything works the way it was designed to work?

Different comments came up, public in the form of taxes, it is mostly public but that is fine, this depends on where the project originates from, and what should this be?

25. What is the level of financial transparency during the start phase?

Comments were sometimes negative, this is low, the biggest challenges or in the beginning it is high but after this it stops, but overall this was scored relatively positive.

Institutional organization

Table 6 evaluation of scores to questions 26 until 34.

	average	median	min	max	range	stdv	answers
26	6.428571	7	2	10	8	1.949923	14
26.1	7.15	7	5	9	4	1.248332	10
27	7.576923	8	5	10	5	1.891276	13
28	6.214286	7	0	10	10	2.607049	14
29	6.916667	7	4	10	6	2.314316	12
30	6.666667	6.5	3	10	7	2.103388	12
31	6.642857	7	3	10	7	2.169975	14
32	5.269231	6	0	10	10	3.086364	13
33	6.541667	6.5	1	10	9	2.775365	12
34	6.428571	7	0	10	10	3.203707	14

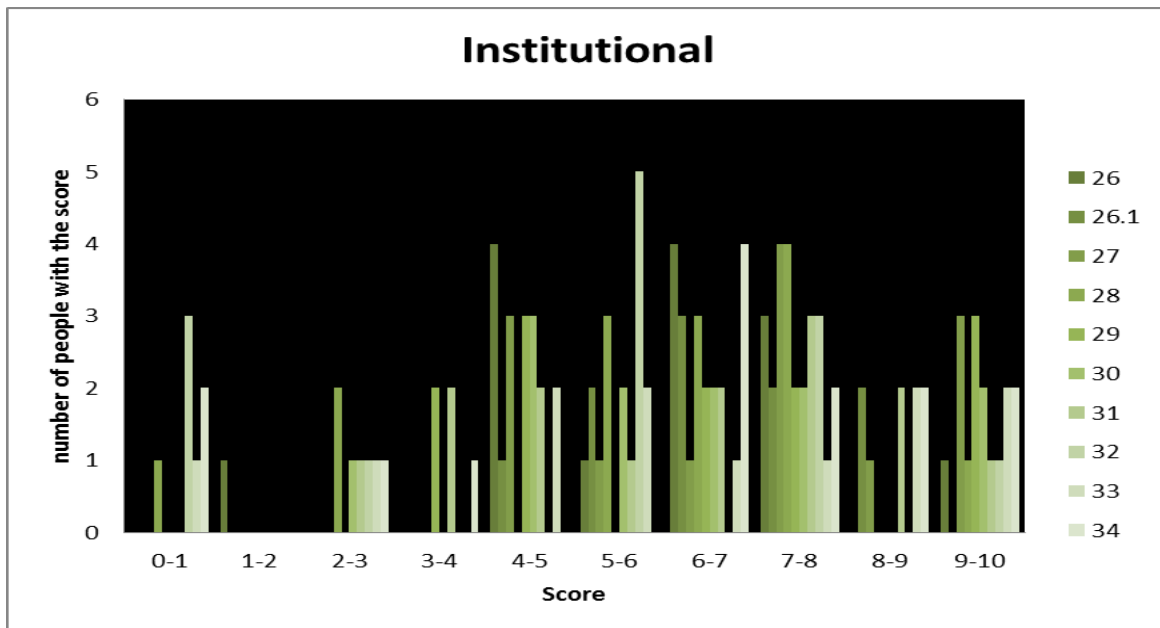


Figure 8 the scores to the principle “institution”, on the y-axis the number of candidates with the score, and on the x-axis the score”

A range of comments made by multiple candidates were in the sense of the differences between the way it was legally organized and the way it was practically executed. The large variation in the answers could be from the difference in practical experiences and personal connections. It can also be noticed that the scores are not always agreeing with the comments made, partly since candidates who have scored questions high did usually not give much explanation.

The experiences with government were also varied, some candidates work very close with local, regional and national governments, other candidates state governments have a limited, facilitating role. It was mentioned that the government influences the competition between the products, and should provide an enabling environment.

Some projects try to set up a new type of organization that will be concerned with sanitation or water in general, sometimes influenced by government sometimes independent.

During these interviews several questions came up. How should this be organized? There is a range of possibilities between public civil society, public private partnerships and fully privatized. What is innovative? Is it true that the smaller the scale the easier the process? A remark made during the panel discussion of the seminar “the paradoxes of water-value vs. price” at the world water week 2013 in Stockholm was “eventually it boils down to what type of democracy we want”. Perhaps this is the fundamental question beneath the discussion of how do we organize it all.

26. The use of a multi-stakeholder approach to align interest to form equitable strategies, approaches and targets 26.1 involvement of all groups

Although scores are on average high, comments were in the sense of “top down,” support but not involved”, “governments is actually just a passenger”, “practically it does not work this way” and “in the form of demonstrations”. But it was also mentioned in one case that “every level has a particular role”.

It is considered a very dynamic process and someone mentioned “this is why it takes so long”. Another topic, which was also mentioned at the multi-stakeholder approach in the management of development section, who should be involved?

27. *The establishment of a regulatory body which forms policy and legislation*

It was said that this was the goal, currently developing, but outside the scope of these projects. Generally it is either not existing, or not in the right way, it is not working or it is not prominent.

28. *Responsibilities are decentralized*

This is a focus point, and it is increasing. It was mentioned that responsibilities are with the government but not organized in the right way. It was also mentioned that we should try not to take over but adopt the role of the watchdog.

29. *Governance is arranged*

Usually it is somewhat organized, sometimes unclear. It was mentioned that the finances around (water) governance is an issue.

30. *Accountability is arranged and clear in the form of roles and responsibilities*

Comments were made in the sense of “officially it is wonderful”, “on paper everything is fine”. It was also stated that sometimes the highest role was missing and sometimes the decentralized roles, that there are holes in the responsibilities, that corruption is very high, and there is a lack of clear incentives.

31. *There is transparency*

Overall this was scored high, but it was also mentioned that it not completely right, for example extortion or black mailing is occurring and it is unclear where to find the published documents. However, candidates also mentioned that this is changing and there are people actively working on this.

32. *Enforcement mechanisms are established*

Also at this question the difference between theoretically and practically was found. They are there, but nobody uses them, on paper it is fine but enforcement is bad. Also the existing ones are not well thought through. It was mentioned that this is a source of worry. In a specific case of south-Africa there was also cultural influence of the apartheid, and the fear leading to practical limitations of the use.

33. *A monitoring system is established*

Some candidates were unsure it is there, and if it is, nobody uses it or implementation is slow. In one case specifically there were monitoring systems for water pollution but these were no longer active due to financial reasons.

34. *Capacity is created and participation is stimulated*

One comment was: the focus point should be “is there a customer for the sanitation products” another comment was that creating participation is the focus point. There were also some explanations of how governments include people and private companies and how they work on capacity building.

What could go wrong?

The answers to this question can be divided into the same principles as the research. The topics that were discussed are politics, finances, technology, social and environment.

Political party changes, “you need to keep track of elections”. Governance is complex, the political organ is unstable, authority and responsibilities are an issue, policies do not always match and corruption is an issue. For an integral plan on water governments should be incorporated. Another topic that came up was the contact between NGOs and governments, “Different NGOs are lobbying at the same government, we are competing with each other”.

Financial viability is challenging, perhaps the most challenging. In the service chain the worries are that people will not use the designed systems for purchasing or using toilets, or for the transport system, either they cannot afford or they do not want to pay. In the value chain comments were made about the developing of the market for the products, the competition, creating value and selling at a good price. The business cases for the complete chain are new and thin and there is a sense of uncertainty. One person stated “Find me a scenario that could not be solved with money”.

Comments about the principle of technology were for example that the existing systems are not maintained well, in new systems the wrong selection of the location could be an issue, it could not fit in the local context, priorities are misunderstood, the costs are not considered well enough, the period after start up is not considered and the water component is lost. There were also some comments regarding a specific aspect of the chain, collection. There can be many disturbing factors which can lead to the absence of collection, transport is an issue and the systems are dependent on it.

There were some comments related to social aspects of the projects, it can require a change in human behaviour, but there are not that many good examples yet, thus we need good trainers. Also there are cultural aspects, for example planning (“planning is a word they do not know in Africa”), or the history of WaSH aid (from giving to investing, will they accept this), and there could be a negative reaction to the use of their excreta for profit.

There were also some notes on environment: extreme weather and natural disasters.

Finally it was mentioned that “current models are not adopted to the degree that they can be and therefore there is no impact” and it was mentioned that “a lack of education leads to loss of interest and therefore loss of momentum”.

Discussion of research

The questions of the interview seemed to be very much in line with everyone's activities. Some candidates have their own type of model for WaSH projects, these all support the general structure described here and sometimes highlight certain aspects.

The measuring method with scoring of a scale between 0 and 10 could be effective. However, since candidates assessed themselves the method is very subjective. When scoring is done by an independent party this party has to be very well informed on all the projects, meaning some form of open access to data is required. At the moment this is not the case, and it was not possible to arrange in the time span of this research.

The number of participants is too low to do proper analysis on the scores. However the qualitative responses were very valuable and have given some interesting insights. It was mentioned by several candidates and people who could not participate in the time span of this research that this research was valuable, generally people responded very positively to the invitations and during the interviews.

This tool could be very useful to assess projects that have already implemented their WaSH solutions. At this stage of the projects it can be assessed where the practical difficulties or limitations lie and we can compare the theory with the practice. Current results include projects in all phases of the project, from starting to finishing, and also results from people who are overseeing multiple projects or are doing WaSH research. To apply this tool for assessment at the final stage of a project it is highly recommended to have this tool and the measuring method improved by a social scientist specialized in evaluation.

Conclusion

The results have indicated several areas of discussion. First of all, too often initiation of WaSH improvements comes from developed countries while they should come from local parties.

When these projects are initiated the question is "who should we involve?" When the project is started, often monitoring is a little neglected.

It is unclear what the role of gender is in these projects. Women are treated equal or equitable in most cases, but the role of woman is also culturally sensitive.

The connection between the financial system and the technology is a point of discussion. How is the infrastructure or sanitation service financed? Is it important that sanitation or WaSH is economically independent? Not everyone agrees. Costs can also be covered by related topics, like drinking water. Costs can be met by taxes alone, but in these new models value from sanitation waste is considered a possible solution, but faces a lot of challenges on its own. Investment in sanitation can come from public or private sources. At the moment many WaSH projects are sponsored by donor money or foreign governments. The funding demands do not always match the solution to the WaSH problems, there is a lack of flexibility.

The influence of the government varies but overall it is agreed there is limited capacity within the local governments to organize or financially support the development of WaSH. This is also related to the idea that most projects are initiated by foreign parties. It is also toughed that influencing the governments is outside the scope of most projects. Influencing is happening by some candidates on some levels, but it could be really interesting to collaborate on this. Together we could influence on different levels and with much more capacity.

Another topic of discussion is the integration of WaSH in a broader context. It is linked to general environmental management, water management, food security, human health. Most candidates do understand this very well; however is this something we should incorporate in our projects? Or do we not have the capacity to do this at this time?

Trans-boundary issues are generally not considered to important at the stages the projects are in, but they will become important when your project succeeds. In terms of up-scalability it should already be on our minds.

One issue that lies under all these already mentioned discussion points is the scale that these projects are active. You could choose to act on a small scale, for example a community. You could then arrange a party that is responsible, organize a small financial system, build toilets and have the waste treated on site. You could also choose to act on a big scale, national. You are talking with the national governments, act on the current system of government and discuss the responsibilities for water and sanitation. Arrange a large plan of attack in providing sanitation service. Discuss and work on a financial model with larger cash flows, and also provide the sanitation infrastructure with treatment (centralized or decentralized).

The problems on the small scale are related to the higher level of government. Is what you are doing legal? What are the future plans for this community? Will they demolish everything you just build?

The problems on the larger scale are the power of our influence, the time scale, and the level of complexity. Does the current government system need changing? Are these leakages is these large cash flows? How long does it take from start to finish?

Perhaps the problem is that we are working on the community level, and are trying the influence the processes on the national level, and in this way we are not succeeding on either. But if this is the case, there is a solution. There needs to be more collaboration from the initiators, the foreign parties. This is also something that is happening more and more. There are online databases for all projects. There can be more collaboration when it is known who is active and where they are active and we can reach our common goal of water and sanitation access faster.

Appendix and references

A Interview structure

A Please give me an introduction to your WaSH initiative and explain to me what your role and vision of the final goal is.

B Could you tell me more about the 'management of development'? And please include the leading role. Please score the following categories on a scale from 0-10 for your initiative. 0 being the worst possible case, 10 being the best possible case, based on the location and time of your initiative.

1. The use of a multi-stakeholder approach to organize integrated planning and to coordinate principles.
 1. Involvement of all groups (gender, age, race, religion, etc.)
2. A monitoring system is established which leads to sector learning and increased knowledge.
3. Gender equity is included
4. The 'local first' principle is included.

C Could you tell me more about the technology you are using? Please score the following categories on a scale from 0-10 for your initiative. 0 being the worst possible case, 10 being the best possible case, based on the location and time of your initiative.

5. Separates faeces from humans
6. Practices basic hygiene
7. Includes all domains and services all members of society
8. Allows maintenance, reparation, replacement and post-construction, and is replicable.
9. Flexibility
10. Promotes financing, is affordable

D Could you tell me more about the social aspects? Please score the following categories on a scale from 0-10 for your initiative. 0 being the worst possible case, 10 being the best possible case, based on the location and time of your initiative.

11. Social acceptability of service offered
12. Everyone's involvement or representation,
13. Locals are seen as users not victims
14. Gender equity
15. A sense of ownership and demand, self-esteem

E Could you tell me more about the environmental impact? Please score the following categories on a scale from 0-10 for your initiative. 0 being the worst

possible case, 10 being the best possible case, based on the location and time of your initiative.

16. The resource base, ecosystem and landscape are protected
17. Degradation is prevented
18. Management of waste, water and resources is arranged
19. Trans-boundary issues are included
20. Climate change aspects are included

F Could you tell me more about the financial model you are using? Please score the following categories on a scale from 0-10 for your initiative. 0 being the worst possible case, 10 being the best possible case, based on the location and time of your initiative.

21. Economic independency and long-term economic viability as a whole are possible, full life cycle costs and risks are included in asset management and planning
22. Funding is provided by the 'local finance first' principle
23. What is the ratio public/private finance during the start phase
24. What is the ratio public/private finance when everything works the way it was designed to work?
25. What is the level of financial transparency during the start phase?

G Could you tell me more about the institutional organization? And please include the leading role. Please score the following categories on a scale from 0-10 for your initiative. 0 being the worst possible case, 10 being the best possible case, based on the location and time of your initiative.

26. The use of a multi-stakeholder approach to align interest to form equitable strategies, approaches and targets
 1. Involvement of all groups (gender, age, race, religion, etc.)
27. The establishment of a regulatory body which forms policy and legislation
28. Responsibilities are decentralized
29. Governance is arranged
30. Accountability is arranged and clear in the form of roles and responsibilities
31. There is transparency
32. Enforcement mechanisms are established
33. A monitoring system is established
34. Capacity is created and participation is stimulated

H What could go wrong?