

## **Project #1: Introduction of innovative and affordable Self-Supply technologies for sustainable improvements in water supply and sanitation in Kenema and Western Rural Districts**

Project Number: **SLE-1014/P 4087/WF001**

Project duration: **01.07.2012 – 28.02.2014** (no-cost extension until July 2014)

## **Project #2: Development of a strategy to accelerate household investment in improved water supply (Self-Supply)**

Project Number: **WF004**

Project duration: **01.07.2012 – 28.02.2014** (no-cost extension until June 2014)

<b>Project Holder #1</b>	<b>Deutsche Welthungerhilfe e.V.</b>	
<b>Project Holder #2</b>	<b>WaterAid</b>	
<b>Co-financed by</b>	<b>Department for International Development</b>	
<b>Coordinated by</b>	<b>WASH Facility Sierra Leone</b>	
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## SUMMARY

### 1. Description of the project and framework conditions

The DFID sponsored WASH Support Program, implemented by Adam Smith International (ASI), is supporting the Ministry of Water Resources (and its agencies/parastatals), Ministry of Health & Sanitation, and local councils with a wide reaching program of technical support, to assist in the reforms in the sector. The support program includes technical assistance and a financing mechanism named the 'WASH Facility'.

In the frame of the WASH Facility two pilot projects on self-supply acceleration implemented by the two INGOs Welthungerhilfe and WaterAid were supported financially<sup>1</sup>. The reason for supporting two projects at the same time was their complementary nature. Welthungerhilfe was focusing more on the technological aspects of self-supply<sup>2</sup> whereas WaterAid was concerned with studying the overall social, political and economic framework conditions for accelerating self-supply in Sierra Leone.

Self-supply encourages the incremental improvement of household and community supplies through user investment in water treatment, supply construction and up-grading, including small rainwater harvesting and groundwater systems as well as sanitation services such as VIP latrines. It is a concept which complements conventional water and sanitation services provided by the government, enabling self-help improvement of supplies where no protected supply is available, or where consumers feel they can support higher levels of service than are presently provided by the public sector[1].

In Sierra Leone communal water supply is limited to communities larger 150 persons. Communities smaller than this are mainly neglected since there is little incentive for utilities to invest in expanding water supply services to this mostly rural communities. A WaterAid study revealed that with over half of communities in Kenema with less than 150 inhabitants, and two-thirds of those in Pujehun, the government is faced with a real challenge to find a strategy to cover a significant proportion of the rural population[2]. This is where the potential of self-supply is greatest to support government's efforts in increasing service delivery to its population.

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<sup>1</sup> A third project, implemented by the Irish INGO GOAL, on sanitation marketing was financed by the WASH Facility as well, but will not be reflected in this report

<sup>2</sup> The project piloted a range of low-cost technologies (built from local materials) developed by the INGO EMAS International. EMAS International has successfully introduced the technology in Latin America, Africa and Asia. The main objective of EMAS' range of technology is to empower the user and to provide a major innovation in the sector by introducing low cost schemes where local technicians in close collaboration with households produce their own WASH hard ware, install them and conduct repair services. These comprise e.g. self-made hand pumps, upgrading of traditional wells, micro irrigation systems, storage tanks, shower cubicles, kitchen sink, rain water harvesting systems (rain capture, sediment removal and storage), and low-cost VIP latrine design.

There are strategies in place promoting the inclusion of self-supply as a complementary approach for decentralised water supply into the National Water and Sanitation Policy but the following statements of some government officials show that there still is a great uncertainty on the way forward:

- “There is basic knowledge existing on self-supply but the challenge is how to capacitate the communities to enhance/improve on the systems”
- “Self-Supply is a good and viable option which has been practised for several years in Sierra Leone. Now the challenge is to enhance the knowledge and put it to the next level”
- “Not only the communities need to be sensitised but the Ministry incl. the local councils as well”
- “Monitoring, done by the engineers on district level, mostly concerns to conventional water supply. Self-Supply initiatives are not monitored yet”

Beyond those at the policy level there are more barriers that need to be overcome on the way of rolling out the concept nationwide. Individual households struggle with raising the capital for the upfront investment and lack information on financing instruments such as micro-credit schemes. In addition they are often not aware of the benefits a water supply nearby their homes would have for their daily life and keep on going to the distant stream or community well.

On the level of the service providers the most critical point is the setting up and the maintaining of a functioning supply chain and ensuring that there is sufficient manufacturing capacity of a high enough quality to meet the demand. As demand is something that usually needs to be stimulated when new technologies are introduced, there is the opportunity to balance marketing activities with the development of the supply chains. The entire material necessary for the low-cost technology is available on the local urban market, but hardly any retailer in rural areas stockpiles the components so that a break of the supply chain can be expected once rolling out the technology to the rural communities.

Being one option among others to support self-supply, the EMAS water and sanitation technology, labelled as low-cost technology was developed to encourage families to incrementally improve their household infrastructure and hence add value to their household living conditions and lifestyles. EMAS implements its strategy primarily through the training of local independent technicians and typically partners with other organisations and local/national governments for implementation. It is a promising technology which is well tested in Bolivia, with all the components and spares available on the local markets for an affordable price. But the functioning over time has yet to be tested and evaluated properly in Sierra Leone.

In the following a short outline of the two projects is presented.

Welthungerhilfe:

The project focused on the promotion of low-cost technologies appropriate to support WASH self-supply efforts of individuals in urban, peri-urban and rural settlements (please refer to footnote 2 on page 7). The project targeted:

- the qualification of 80 technicians and practitioners
- advanced training of 10 of the 80 as 'master' trainers on EMAS technology
- the implementation of 30 demonstration sites using range of EMAS WASH technology for marketing
- the increase of demand for self-supply WASH schemes due to public awareness raising and community outreach
- the establishment of 15 start-up businesses entering the market and improved sector learning competence and strengthened capacity of stakeholders.

For that, an overall budget of €263,095 was available.

WaterAid:

The project seeks to develop a set of practical guidelines for accelerating private investment in water self-supply and improving the standards of supplies financed by users themselves. This is to complement community supplies aiming at increasing demand for supply construction or incremental upgrading to provide a safe, convenient water supply. In addition the project aims at testing a different water lifting technology, namely the rope pump. It further aims at upgrading of 100 family wells. The project had a budget of around €328,000 available.

*[In addition to this evaluation report there will be separate document available with condensed information on the scalability of the self-supply concept in Sierra Leone.]*

## 2. Relevance

Traditional investment in the WASH sector in Sierra Leone is still primarily in the hands of the government and/or INGOs and is implemented as community projects (e.g. community had dug wells and installed hand pumps). People's willingness to pay for the maintenance and repair of the communal services and to voluntarily manage the water supply systems is limited due to the lack of ownership. Peoples' perception is that water supply should be provided for free either by the government or INGOs. Private investment into improved individually used WASH systems is still low key and at its beginning without any real recognition and support from the government. According to the Progress on Water and Sanitation and Drinking Water Update 2013, the national rate of people using improved water sources is at 57% and for the use of sanitation facilities the picture becomes even more challenging since only 13% of the population nationwide is using improved facilities. The strategy document "Rural water supply and small towns" (2013) introduces self-supply as "complementary to conventional communal supply, which is generally government or INGO-funded and which forms the backbone of rural water supply".

## 3. Effectiveness

### Welthungerhilfe:

The targeted outputs were mainly achieved at the time of the evaluation (January 2014). Some outputs were overachieved and some are slightly behind schedule. 25 out of 30 demonstration sites were established and the project management should consider ceasing the implementation of the last five and rather spending time and resources into monitoring and quality management activities.

The trained technicians were all involved in setting up the demonstration sites and did the installations at the private households. The owners who invested in self-supply technology are all involved in the maintenance and repair of the supply structures and show a great sense of ownership<sup>3</sup>. They are willing to provide information on frequently asked questions from the interested public and refer to the technicians for a quotation or further detailed information.

### WaterAid:

Four out of the five targeted outputs were not finally achieved at the time of the evaluation. The study on the potential of accelerating self-supply in the two target districts in Sierra Leone was finalised and provides a detailed analysis of the prevailing state of water supply levels and the perceptions of people on its adequateness in the two districts Kenema and Pujehun and lines out potential of self-supply in complementing communal water services. The study provides a good set of recommendations which need to be taken into consideration for scaling up the self-supply concept. The upgrading of family wells, a comprehensive training needs assessment and study on the financing self-supply including a financing guideline will be completed between February and June 2014<sup>4</sup>.

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<sup>3</sup> Most water pumps and toilets were found to be locked by the owners to protect their investment from unwanted use and tampering.

<sup>4</sup> WaterAid requested for a no-cost extension until June 2014.

#### **4. Efficiency**

The two projects did not follow the classical approach of a WASH project which is delivering WASH services to a defined number of beneficiaries, but rather on the promotion and piloting of the self-supply concept to increase coverage and WASH service levels. The two pilot projects aimed at trying out the acceptance, profitability, market potential and the technical optimisation through field testing of a socially, economically and technically new approach and technology before it could be brought onto the wider market in Sierra Leone. It is in the nature of such pilot projects that they require more financial resources since they have to be accompanied by research and the development of manuals and guidelines. Therefore the costs per beneficiary, presented in the following paragraphs are high, since self-supply, once rolled out on a larger scale is deemed to be more efficient as it levers domestic investment.

##### Welthungerhilfe:

The project aimed at targeting 5,930<sup>5</sup> individuals. This results in a cost/benefit ratio of € 49,00 per beneficiary.

The project was able to generate significant funding (on top of the initial funding) with initiatives resulting directly from project activities<sup>6</sup>. Against the background of the above mentioned the project delivered a good value for the money invested.

##### WaterAid:

The project aimed at targeting 4,315<sup>7</sup> direct beneficiaries. This results in a cost/benefit ratio of €76,00 per beneficiary.

Around 50% of the total budget was allocated for the development of

- a) study on the potential of accelerating self-supply in Kenema and Pujehun
- b) comprehensive training needs assessment including a self-supply training package
- c) study of the financing of self-supply initiatives as well as the development of a self-supply acceleration package

At the date of the evaluation one study (output 1) was completed. The other studies are still under revision in the Technical Support Unit in the headquarters of WaterAid.

#### **5. Outcomes and impacts**

Self-supply comes with many advantages for the benefitting individuals, households and communities. Users enjoy the advantages of having the water well nearby since self-supply sources are always close to homesteads. Time saving in the daily efforts of water fetching and hence a decreased workload mainly for the women are only two of the prevailing advantages. Moreover, there are higher chances for reliability, functionality and sustainability of the supplies because there is a strong sense of ownership which drives users to put more effort in maintenance. Most of the

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<sup>5</sup> As stated in the project proposal

<sup>6</sup> The project was able to win a contract with the International Fund for Agricultural Development on the installation of 20 rain water harvesting system including the training of 100 farmers on rain water harvesting.

<sup>7</sup> As stated in the project proposal

pumps and toilets were found to be locked to protect the private investment from unwanted use and tampering.

A roll out of the concept at scale is very likely to have positive impacts on the WASH coverage especially in the rural areas of Sierra Leone. In the urban and peri urban areas it can play a significant role in improving service levels.

Likewise in the CLTS concept, self-supply plays a role in emancipating communities from dependence on agencies and donors and empowering them to realise their own water and sanitation services in their towns and villages.

Some specific outcomes

Welthungerhilfe:

In this project two groups of direct beneficiaries are targeted:

1. Private households willing to learn about the concept and the technology and willing to explain it to anyone interested serving as demonstration sites:

For these households the benefits are on the side of enhancing convenience by increasing the service levels. Moreover, in some cases the improved water supply encouraged the owners to engage in income generating activities such car washing small scale agriculture or just selling the water to others. Some cases were found where owners opened showers or toilets to the public requesting small amounts of money for their use.

2. Technicians who will be trained on the EMAS technology and the self-supply approach:

75 technicians and practitioners received training on several components of the EMAS technology. Out of this trained technicians the best 10 were chosen to be further promoted to "master trainers". 11 business units, out of the group of trained individuals were established comprising 5-10 trained technicians.

Besides this the project was able to implement private installations beyond the Western Area Rural and Kenema Districts (project locations) additionally to seven other districts, and to win a contract for the installation of rainwater harvesting systems (refer to previous page).

WaterAid:

One out of five outputs has been accomplished, which does not allow for a meaningful assessment of the impacts. At least for the study on the potential for accelerating self-supply it can be presumed that it will have a far reaching impact on the sector since it presents a good number of opportunities and challenges for the scalability of the self-supply approach. The other study on the financial framework for self-supply, and the financing guideline, once finalised, are also presumed to provide vital information and recommendations complementing those of the study on the potential of self-supply. Together with the self-supply training guideline the sector will then be equipped with a comprehensive package supporting self-supply projects..

## 6. Sustainability

The projects have convinced and motivated the beneficiaries to participate actively in the programme execution and have engaged people in self-development efforts creating a good sense of ownership. The approach of the pilot project was to fund WASH installations only for demonstration and marketing purposes. Later, in the roll out phase, these subsidies vanish completely, since all the efforts have to come from the individual households. The project was able to expand the implementation of privately funded installations beyond the two districts targeted in the proposal to additional seven districts in Sierra Leone. This suggests that there is potential for up-scaling the self-supply concept in Sierra Leone.

## 7. Most important recommendations

In this chapter the most important recommendations are presented. The recommendations given in this evaluation report split into:

- a) Specific project recommendations, addressing the gaps identified in project management, execution referring to the chapters one (1) to six (6) of this report, and
- b) Specific recommendations for rolling out/up scaling the self-supply approach in Sierra Leone, referring to the findings from chapter seven (7).

Both sets of recommendations are presented in tables with the specific project recommendations having reference to the chapter where their origin is mentioned.

The project specific recommendations are:

No.	Recommendations	Directed to			Priority
		WHH	WaterAid	WASH Facility	
2.2 Relevance to objectives of Welthungerhilfe					
1	Integrate the self-supply concept in other sectors of Welthungerhilfe Sierra Leone such agro-forestry, natural resource management and food security and nutrition	x			medium
3.1 Achievement of project purpose					
2	Monitor and assess the number of private installations to correlate them to the demand	x			medium
3	Monitor the performance of the business units for at least 6 months to assess on their performance	x			medium
3.3.1 Quality of the project planning matrix (Logframe)					
4	Don't mix outputs and indicators. Develop consistent Logframes		x		medium
3.3.2 Analysis of the results framework					
5	Reconsider the execution of output 2. Reduce the amount of piloting activities to a number which is manageable with the personal resources of Water Aid in Sierra Leone		x		high
3.4.1 Organisational structure of the project holder					
6	Rethink the organisational set up in Sierra Leone and augment the in-country support to the project manager		x		medium
3.6.1 Presentation and evaluation of the project outputs and activities					
7	Don't put more efforts in establishing the last 5	x			high

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No.	Recommendations	Directed to			Priority
		WHH	WaterAid	WASH Facility	
	demonstration sites				
8	Don't put more efforts in establishing the missing business units	x			high
9	Review EMAS quality standards and develop checklists for supporting monitoring activities	x			high
10	Make the reports available to the sector		x		high
3.6.4 Occurrence of assumptions and risks					
11	Develop a realistic risks rating in the project planning	x			medium
5.2 Impacts					
12	Allow for a consolidation phase in-between the pilot phase and the strategy development			x	high

The specific recommendations for scaling up are:

No.	Specific recommendations	Directed to			Priority
		Government	Development partners <sup>8</sup>	NGOs <sup>9</sup>	
1	Integrate Rural Water Supply Strategy into the National WASH Policy	x			high
2	Study the potential that self-supply has to increase coverage for achieving the MDGs (investors will ask for the potential of self-supply in the first place)	x			high
3	Conduct another water point mapping including unimproved sources and family wells in order to assess the magnitude of the potential of self-supply for increasing coverage and access	x			high
4	Conduct research and development on low-cost technologies viable to support the concept of self-supply	x			medium
5	Advice and training for local governments on quality control	x			high
6	Include self-supply in national monitoring and assessments	x			medium
7	Develop curricula for water technicians with focus on low-cost technologies	x	x	x	high
8	Develop case studies on best practises and capitalise on them for marketing self-supply			x	high
9	Learn from experiences from other countries, foster exchange visits and mutual learning	x		x	medium
10	Mainstream self-supply in WASH programmes		x	x	medium
11	Acquire deeper knowledge on the different barriers that keep households, governments and service providers from investing in self-supply	x	x	x	high

<sup>8</sup> Donor organisations such as DfID, UNICEF, EU

<sup>9</sup> NGOs are both local and international organisations active in the sector, such as WaterAid and Welthungerhilfe

12	Conduct a supply chain assessment with the focus on rural areas and their connection to the markets	x		x	high
13	Develop a checklist for quality monitoring during and after installation			x	medium
14	Train technicians on business administration and marketing			x	high
15	Sensitise communities on micro-credit and loan options to raise up front capital		x	x	medium
16	Coordinate the efforts on WASH service delivery of the implementing partners in the WASH sector	x			high

## 8. General conclusions and "Lessons Learnt"

1. The pilot phase was too short to meaningfully assess its impacts. A consolidation phase should have been introduced to allow monitoring the outcomes of the pilot phase to serve as a sound basis for the strategy development.
2. To create a perceptible impact on the WASH sector in terms of self-supply the efforts of NGOs have to be bundled and clear coordination structures have to be established in future projects.
3. Low-cost technologies and private supplies are not necessarily associated with lower levels of water quality. All private HH interviewed drink the water from their improved wells right away, without reporting any incidents of sickness or discomfort. However HWTS concepts have to be strengthened in the self-supply concept, since water contamination occurs on the way back from the source to, and during storage the homesteads.
4. Sanitation self-supply works best where there have been successful CLTS undertakings.
5. Community mobilization and self-supply promotion are crucial to the success of self-supply and must cut across the whole duration of the project.
6. Self-supply strengthens ownership and hence the lifespan of WASH supplies
7. Though there is a willingness of the people to invest in their water supplies, they are still looking for sharing responsibilities between the INGO and them like in the case of conventional water supply schemes where NGOs provide all industrial materials while communities provide local materials e.g. unskilled labour, stick, stones etc. This calls for more sensitization on the concept of self-supply.
8. Addressing the needs and capacities of the poorest households with self-supply initiatives is the greatest barrier to overcome in order to ensure they are not neglected.