ECOSAN IN RWANDA: A BASELINE STUDY TO IDENTIFY CHALLENGES AND OPPORTUNITIES

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**Context of rural sanitation in Rwanda**

Rwanda has made remarkable progress in access to improved sanitation in households. As a result, almost all households claim to have toilets and the rate of open defection dropped to 6% in 2009 (WATSAN Policy 2010). The National survey EICV III (2010/2011) revealed that access to improved sanitation in rural areas is 73.1%. The EICV III surveyed 14,308 households for this report.

According to the 2013 WASH Sustainability check report, in the four districts of the volcanic region, Burera, Musanze, Nyabihu and Rubavu, sanitation efforts have been focused on building latrines in schools, hospitals and public places for the benefit of the general population. These efforts have also integrated advocacy and education, encouraging households to build latrines in their homes. The survey found that 93.4% of the respondents’ households had latrines while about 6% did not own latrines but shared a latrine with another household.

Although access to latrines seems not to be a challenge, observations on the ground continue to reflect the unsanitary condition of existing latrines, stressing the need to qualify improved and unimproved sanitation. The construction standards and hygiene conditions of household latrines need to be addressed through community education (Ref. Sustainability check report 2013).

A few discrepancies in statistics also call for standardisation. For instance, while the 2011 EICV III reported that 70.4% respondents had access to improved sanitation in Nyabihu district, the district health report released in May 2014 reported that only 51% households had improved hygienic latrines.

**Justification for SNV Ecosan Project**

The most common type of latrine used in rural Rwanda is the pit latrine. It is widely perceived as an easy and affordable solution. Nevertheless concerns are being raised about the limitations of this technology in relation to poor handling while emptying and disposing of waste when filled, bad odour and flies, as well as the risk for ground and surface water pollution in some particular geological contexts.

As a matter of fact, the latter challenge is real in the volcanic region of Rwanda. The rocky terrain prevents people from digging deep pits. As a result, pits are usually shallow and fill up quickly, threatening efforts of local communities to achieve sustainable solutions with scarce resources. Environmentally, the shallow pits in flood-prone areas pollute the water streams regularly during heavy rains.

This calls for development of alternatives that are context specific while providing the required benefits of sustainable sanitation.
The concept of ecological sanitation is neither new in Rwanda nor in its Northern and Western regions. Ecological sanitation is even presented in the 2010 water and sanitation policy and strategy as a suitable solution for Rwanda. While it is seen as a viable solution conceptually, the implementation seems ineffective so far.

**The project: objectives and scope**

It is in that context that in 2014 SNV Rwanda launched a pilot project in the above mentioned region of Rwanda themed “Ecosan in Rwanda – toward scalable solutions for ecological sanitation in Rwanda”.

The objective of the project is to understand what undermined the attempts to introduce ecological sanitation in the region while proposing alternative ways to further promote the uptake of the technology that may inform policies and stakeholders in the sanitation sector.

To achieve this, SNV aims to raise awareness among communities and local leaders on the benefits of the technology, by erecting demonstration latrines in champion households and schools while drawing lessons on best practices for purposes of scaling up. The project focuses on 2 sectors of Burera (Cyanika and Rugarama) and 2 sectors of Nyabihu (Bigogwe and Kabatwa).

**Objectives of the baseline study**

This case study reports the key findings of a baseline survey that was conducted in order to inform the implementation of the project.

It highlights important findings related to: characteristics of sanitation access in schools and households, observations of local leaders, thoughts and behaviours of households in relation to sanitation in general and ecological sanitation particularly, and health reports from Health Centres.

Clients for SNV WASH capacity development programme are primarily Local district authorities who are responsible for planning, implementing and monitoring WASH services. This Ecosan baseline was conducted in the region with the aim of identifying the real needs of the population in order to meet local needs.

Other key WASH partners in the region namely UNICEF, MOUCECORE Rwanda, local organizations, such as Rwanda Environment Care and EFP Ltd were also interested in the baseline data, to enable them to develop projects and programmes to assist the Districts in designing sanitation plans to promote improved planning and resource allocation and improving access to sanitation targets.

At national level, this study will inform the WASH Sector Working Group which brings together policy makers, development partners, local organisations and private sector.

**Aim**

The baseline study aims at contributing to the knowledge base of the local context in Nyabihu and Burera Districts. Further it collects information on the current situation to better orient the intervention. It provides a basis for effective monitoring and evaluation of the intervention and an impact assessment at the end of the project. Specifically its objectives are to:

- Evaluate the access to sanitation facilities in households and schools.
• Establish a database on sanitation conditions and needs of rural households and schools
• Check suitability of the planned intervention
• Provide relevant indicators for the monitoring and evaluation of the activities

Methods
The baseline studied the hygiene and sanitation situation through these particular parameters:
• Health in relation to sanitation awareness
• Sanitation technologies use and performance
• Specific knowledge on Ecosan and willingness to use the technology
• Agricultural use of recycled products
• Willingness to pay for sanitation, and Ecosan specifically.

SNV collected quantitative and qualitative information through a set of research methods between April and May 2014. Initially, structured interviews were conducted with key informants among them local leaders engaged in the sanitation service delivery. At district level: Environmental Health Officer, WASH Project staff, Engineers, Education Officer were interviewed. At sector level: the Executive Secretary in charge of social affairs, Agronomist, Education Officer, existing WASH cooperatives, and masons were consulted. Secondly questionnaires were designed and 6 enumerators (including two WASH Project social mobilisers) trained to administer the questionnaires in 185 households and 22 schools. Two focus groups were conducted featuring discussions and interviews with key informants. 4 Health Centres were visited in the 4 sectors to gather reports on the main causes of illness from surrounding communities. Quantitative data from households and schools interviews was entered and analysed using Microsoft Excel. Qualitative data collected from document review, group discussions, and key informant meetings were summarized and analysed under thematic structures.

Why has Ecosan not taken off in the past?

In 2007, a WASH project targeting the 4 districts of the volcanic region introduced Ecological sanitation. It targeted public places and households.

In households, the approach focused on distribution of Urine Diverting (UDDT) slabs (plastic slab that separates urine from faeces). Thousands of these slabs were distributed; a number of masons were trained. To date, the whereabouts of the slabs is unknown. During this baseline some of the families known to own Ecosan toilets were visited. The general observation was that the eco-slabs were used to build regular pit latrines fitted with urine diverting slabs. There was neither separate collection of urine nor access to the pit from outside for emptying. In summary it appears that the understanding of UDDT system was quite weak.

In public places, many Ecosan blocks (at least 20 in the two districts) were built but no management plan was put in place, and neither were users trained; the toilet blocks were left to the discretion of owners of nearby shops and bars. The technology implemented in this case was the UDDT with removable buckets that have to be transported to a composting site for further treatment. Apparently, no composting site
was planned for. Due to lack of knowledge, most people considered handling of faecal matter taboo. Local authorities found the management practices, spontaneously developed by local communities risky (unsafe transport and disposal of fresh faeces in open pits in attempts to compost) and shut down most of the toilet blocks.

More recently, another programme built 16 blocks of Ecosan latrines in schools. A year later, by the time this baseline study was undertaken, the latrines were not in use. The reason is that the schools were not trained to use the facilities. As a result, the toilets are in a state of disrepair. Tanks for urine collection have been removed, doors or pits covers are missing and the walls are partly damaged. The head teachers interviewed admit they plan to transform the existing blocks into simple pit latrines.

**The perspective of communities resulting from past experiences**
Following the above mentioned experiences some conclusions can be drawn:
Local authorities are of the mind-set that Ecosan is an expensive technology that is not meant for what they call ‘poor communities’. From their experience, mainly in public places, Ecosan translates to the handling of faecal matter, which they consider unsafe. Most residents are unaware of the existence of alternative designs within ecological sanitation. It is clear that past projects didn’t accompany the communities enough in the adoption of the new technology that was proposed, leading to misuse and misunderstanding.

**Keys findings in Health Centres**
The Health Centres visited in the four sectors during the baseline study reported that diseases related to poor sanitation and hygiene practices are common in the region. As shown on the graphs below, intestinal parasites and diarrhoea in Kora and Bigogwe Health Centres in Nyabihu represent the primary cause of doctor visits at 39%.

In Cyanika Health Centre, Burer, 16% of all new patients had intestinal parasites. Respiratory infections are the leading cause of illness in Cyanika (48%) and second in Kora and Bigogwe (19%) Health Centres.

![Cyanika’s common diseases](image.png)

*Figure 1: diseases reported in Cyanika Health Centre in 2013*
Key findings in households

Some 48% of the households represented were found to comprise at least 6 persons. Only 6% of the respondents were living with one or two people.

Participation in Community Hygiene Clubs (CHC)

In 2009, the Community Based Environmental Health Promotion Programme (CBEHPP) introduced the CHC for health education addressing sanitation and hygiene issues. The baseline found that 29% of surveyed households were members of a CHC while 67% were not participating because there was no club in their community. This confirms that the CBEHPP has not reached all the villages within the focal districts. Some disparities exist within sectors of the same district. For instance, while 100% of the respondents in Kabatwa sector were engaged in a CHC, only four respondents in Bigogwe sector were members of a club.

Access to sanitation

As expected, the survey found that 98% of the households had access to toilets. Of these 98%, 4% were using their neighbours' toilets. 82% of the households surveyed had access to the traditional pit latrine. The other types of toilets in the surveyed area were Ventilated Improved Pit (VIP)-11%, and UDDT 5%.
Satisfaction of users

43% of the respondents were not satisfied with their current facility. The reasons they gave were as follows:
- lack of [financial] capacity to build a better latrine or pay for repairs/maintenance,
- they are unable to buy water for cleaning, and buy cleaning materials,
- they aspire to have a more modern latrine.

The next tier were neither satisfied nor dissatisfied (22%), and 17% of respondents said that there were satisfied.

These findings suggest that there is need to upgrade the sanitation facilities at household level.

Construction modalities

About half (49%) of the respondents actually built their latrines themselves, 37% contracted a mason, and 7% built with the help of an external agency.

81% of respondents said that they paid for their facility themselves, either using their income from farming, selling livestock, or using resources (stones, wood) from their land to finance it. 12% received assistance.

The percentage of people building their latrines themselves suggests that the latrine construction sector lacks enough skilled workforce. Though for simple pit latrines this doesn’t pose a critical problem, the more elaborate technologies (VIP, UDDT) require skilled technicians. To some extent, the failed implementation of UDDT can be attributed to poor service provision exacerbated by insufficient information and skills.

Hand washing

The presence of a hand washing facility (HWF) within a reasonable distance from a latrine is a significant determinant of hand washing practices after latrine use. This enquiry established that 85% of respondents did not have immediate access to a HWF. Only 12% of the respondents, all located in Nyabihu, did have a HWF.

Regarding hand washing, 42% of respondents said that they wash their hands before eating and after using the latrine. 22% only washed before eating while 12% of the respondents said they washed their hands either after work, after coming from the farm, or after arriving (home) from the market. The average frequency of hand washing with soap among respondents was 92%. However, among the respondents, 85% did not have a hand washing facility (HWF) in the two districts (none in Burera), or running water, which suggests that most households know the importance of hand washing but lack adequate facilities to do so. It further highlights the complexity of measuring such behaviour.

Willingness to spend money on sanitation facilities

The willingness to spend money on sanitation facilities polled at 71% positive and 27% negative. Most who replied no, said that they could not afford to spend money on sanitation, and urgent needs like school fees required their money, or that theirs was still new. Respondents who were willing to spend on sanitation explained that either they did not have a toilet, and therefore needed one or needed to change their sanitation situation.
Use of fertilizers in agriculture
The survey found that 20% of respondents have already used human excreta on their farms as fertilizer while 79% did not. The most common reasons for not using human excreta as fertilizer were: Because they don’t know how to use it, their toilet isn’t yet full, they haven’t seen anyone else using it, they think it is harmful to people, or they use other (organic/inorganic) fertilizers already. Those who use excreta often use faeces from their own pit latrines or buy from a neighbour’s latrine when it gets full and is decomposed. Besides human fertiliser, the percentage of respondents using chemical fertilizers (NPK, DAP, etc.) is 71% (98% in Nyabihu 46% in Burera).

Ecosan knowledge
The survey revealed that 67% of the respondents had never heard of the Ecosan technology and system. In Nyabihu, only 38% of respondents had heard of Ecosan and only 23% in Burera. Most respondents attributed the Ecosan knowledge to having seen it either in their village, along the road, at a neighbour’s house, or heard about it in a club meeting or on the radio. Ecosan is largely understood to be a latrine that has two holes separating solid and liquid excreta. Some respondents also knew that when the first vault is filled, the faeces then have to stay for 6 months before being safe for use as fertilizer. Other respondents had heard of Ecosan but didn’t have an understanding of the technology at all. Some knew it as an expensive, but sustainable latrine that can produce fertilizer, save time, land and money.

Willingness to have an Ecosan latrine
After an explanation of Ecosan technology to those who haven’t heard about it, respondents were asked if they ‘would like to have the Ecosan technology and system?’ – 84% replied yes, and 8% replied no. 50% of the respondents were ‘very willing’ and 29% replied they were ‘willing’ to contribute to the construction of their own Ecosan latrine.
Key results from schools

Access to sanitation

The situation of access to sanitation facilities shows that more latrine units are needed in almost all of the schools. In 13% of the schools, one latrine is used by more than 100 pupils. Only 26% of schools have a latrine per less than 40 pupils as per UNICEF recommendations.

It is hardly surprising that 100% of the schools either have pit latrines or VIP latrines or a combination of both while only 4% of the schools polled have a block of UDDT latrines besides the two other options. A closer look at the latrines revealed that in Nyabihu, 50% of latrines were clean, without flies or bad smell, whereas in Burera, only 22% of schools latrines match these standards.

65% of the schools interviewed are not satisfied with their current sanitation facilities.

Hand Washing

While some schools have no hand washing facility at all, in 53% of the schools, one facility is shared by more than 200 students.
Teachers raised the issue of durability of the hand washing facilities proposed to them the “Kandagirukarabe” that students can easily damage.

**Schools Health Clubs**

WASH and health issues at school level are dealt in a club namely “Health club”. 96% of schools surveyed reported having functioning health clubs. Most of the clubs have been trained on different topics regarding hygiene and sanitation behaviour change by different projects.

![Functioning Schools' health clubs](image)

*Figure 7: Functioning of schools' health clubs*

**Willingness to spend incomes on sanitation**

70% of schools are very willing to contribute for the construction of new blocks of latrines, 13% are partially willing and 17% are not willing. Respondents who were willing to spend income in sanitation said they would do so to replace some blocks that are getting too old, to meet the growing number of students and finally to align with the directives of local government that require a ratio of 40 students per unit of latrine (i.e. 40 boys/unit and 35 girls/unit)

**Ecosan Knowledge**

91% of respondents have heard about Ecosan, when asked if they are willing to use Ecosan in their school, 70% of schools said they are willing while the remaining 30% are not.

**School gardening**

43% of schools have gardens whereas almost all of the remaining 57% said they are willing to start school gardening. 70% of respondents said that they are willing to use urine and sanitized faeces as fertilizers in their gardens.
The study revealed the need to upgrade existing pit latrines to more modern facilities. Linked to that, promoting hygiene practices is an area of concern considering the prevalence of waterborne and hygiene related diseases in the surveyed health centres.

Although Ecosan is not new in the surveyed area and some people do understand the principle and are willing to practice ecological sanitation, the need of sensitization through convincing messages is still relevant for the remaining households and schools. Sensitization efforts should be structured around hygiene, operation and maintenance, as well as re-use of by-products in agriculture. Leaders who have already embraced the technology can be engaged for further promotion.

Pioneer projects that introduced Ecosan struggled with misunderstanding and rejection in some cases: with some users having strong reservations about handling faecal matter, while local authorities feared that disposal of collected faeces was unsafe. This may explain why some respondents reported that the use of Ecosan latrines is difficult. For further interventions, attention should be paid to technology proposed, ensuring that it is as user friendly as possible. Follow up and coaching are necessary for the communities to fully understand the importance of the principle.

The districts were involved at the beginning of the data collection process. Their enumerators, some of whom had prior experience with data collection, shared their knowledge of the context and were a valuable contribution to the exercise.

Despite their contextual understanding, the one-day training organised for the enumerators seemed to have been insufficient since their answers to some questions showed their understanding was below par.