



End of Project Evaluation Report

WASH and Grow! Ecological sanitation in Kenya (2021-23)

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BACKGROUND

Mifuko Trust has implemented the **WASH and Grow! – Ecological sanitation in Kenya** project in Makueni and Machakos counties in Kenya for the period 2021 – 2023. Project implementation was based on the project plan developed in 2020 and financed by The Finnish Ministry of Foreign Affairs (MFA) for a total project cost of €159,199 in discretionary state aid.

The project aimed to improve sanitation and hygiene conditions, promote sustainable agriculture in the target communities and bring together an innovative group of actors, including 24 women's self-help groups from Kenya, the Fair-Trade design company Mifuko Oy, sanitation experts from Käymäläseura Huussi ry (Global Dry Toilet Association of Finland), and sustainable construction experts from Ukumbi ry.

The project addressed inadequate sanitation and hygiene conditions, as well as soil degradation, which hinders productive agriculture. These problems increase illness and undermine food security, leading to increased loss of livelihoods and poverty.

Key project targets as stated in the project plan were:

- 715 women beneficiaries belonging to 24 women's groups in rural eastern Kenya.
- Secondary beneficiaries were the families of the 715 households, who would benefit from the project's activities and their participation in its implementation.
- The project's knowledge and expertise were expected to benefit the wider communities where these families live.
- Raise awareness about ecological sanitation and create business opportunities out of it.
- Create healthier communities that have improved living conditions and livelihoods.

Overall, the project was expected to improve health and livelihood opportunities in the target communities.

The implementation of the WASH and Grow! Ecological sanitation in Kenya project was done by Mifuko Trust supported by the expertise of the Global Dry Toilet Association of Finland and Ukumbi ry, a Finnish NGO focusing on sustainable architecture.

The key development problems addressed by the project were poor water, sanitation, and hygiene (WASH) conditions and degrading soil that hampers small-scale farming. These problems cause ill health and food insecurity that lead to loss of livelihoods and increased poverty. The expected main development impact of the project was that community members in the project area were healthier and had improved their living conditions and livelihoods as a result of improved sanitation and hygiene systems and fertilizer. Furthermore, the women in the project area were expected to be able to fulfil their rights as equal members of society.

The expected main project outcomes were:

- Women of the self-help groups and their communities improve their hygiene and sanitation and suffer less of illnesses, which improves their possibilities to work, farm and participate in society.
- The quality of soil improves, the harvests increase, and nutrition improves, which supports climate change adaptation.
- Ecological sanitation creates new sources of income for beneficiaries.

Key activities as per the project plan were:

- Training of 24 sanitation ambassadors
- 24 workshops on the concept of ecological dry toilets, the use of excreta and urine as fertilizers, hygiene, safe menstruation hygiene, and soap making.
- Construction of 24 interfaces for ecological dry toilets for demonstration.
- Awareness raising in communities and to county authorities.
- Business skills training and business development with beneficiaries.



The long-term objective of the project is:

Community members in the project area are healthier and have improved their living conditions and livelihoods thanks to improved sanitation and hygiene systems and fertilizer. Women in the project area are better able to fulfil their rights as equal members of society.

Key expected project outcomes were:

- Improved sanitation and hygiene conditions for women's group members and their communities, leading to better health, and increased opportunities for work, farming, and participation in society.
- Improved soil quality, increased crop yields, and enhanced nutrition to support climate change adaptation.
- Ecological sanitation brings new sources of income for the beneficiaries.



EVALUATION METHODOLOGY

The evaluation team employed a desk literature review and a Participatory Evaluation Approach (PE&A) through participatory data collection and analysis:

- **Desk review of the WASH and Grow! I project plan and relevant documents:**
 - WASH and Grow! I project plan
 - Results matrix
 - Annual reports 2021, 2022
 - Mid-term appraisal report, November 2022
 - Internal review conducted by the Mifuko Trust team in early November 2023
- **Field visits and Focus Group Discussions (FGD) and Key Informant Interviews (KII)**
 - Field visits to project sites
 - Focus group discussions with two women groups
 - Key informant interview with six individual heads of households
 - Key informant interview health officer at a level 2 health facility
 - Key informant interview with two WASH and Grow! local management team members



KEY EVALUATION FINDINGS

1. Sanitation Improvement

Toilet construction was one of the key project accomplishments. A total of 27 ecosan (ecological sanitation) toilets were built, exceeding the planned target of 24, with one of them being an accessible pilot dry toilet. The evaluation team took note of the proper management of the toilets. It was observed that all the toilet units visited had hand washing stations with water and soap. In homesteads with dry toilets, it was noted that the existing old pit latrines were being used for the safe disposal of menstrual waste. All household owners with dry toilets reported a reasonable reduction in incidences of diarrhoeal diseases which they attributed to improved sanitation brought about by use of the dry toilet and sanitation education.

2. Soil and nutrition improvement

It is too early to determine **the levels of soil fertility improvement** as most of the constructed ecological toilet chambers were either not yet full or at the composting stage. However, 2 dry toilets are already composting producing ecological fertilizer. Attempts on the use of diluted urine fertilizer (urifert) have been made; when it was used on fertilizing trees positive results were observed. A full assessment of the improved soil fertility will likely be ascertained when both composted manure and urifert are applied as basal and top-dressing fertilizers. It is, however, necessary to test soil samples for nutrient levels before the comprehensive application of ecosan fertilizers is made for the purpose of comparative analysis.

There was a misunderstanding even among some of the project members who have been trained in the use of ecosan fertilizer regarding the proper application, especially the urifert. Some project members were making wrong mix ratios for urine and water other than the recommended 1 part of urine to 3 parts of water while others were combining urifert with chemical fertilizers. Some project members who made wrong mix ratios attributed such to doubts about the effectiveness of the urifert and felt more urine added to the mix would make the fertilizer more effective.



3. Ecological product enterprise and income generation

The key ecological sanitation products that were identified for marketing and income generation for project members included:

- Ecological sanitation toilets (dry toilets) construction
- Compost manure
- Urine fertilizer (urifert)
- Hand washing stations
- Soap
- Reusable sanitary towels
- Sitting pans

The project trained eight (8) dry toilet constructors who have gained experience after constructing 27 dry toilets for ecosan ambassadors. There were, however, no offers from non-project community members to have the constructors build them toilets at a fee despite seemingly growing interest for dry toilets in the project area. This was attributed to inadequate marketing of the toilets and high construction costs.

Regarding ecosan compost manure and urifert, there wasn't yet enough manure for use by toilet owners and for sale as all but 2 toilets were still at the composting (12 months stay) stage. For the urifert, there were substantial collections from the toilet owners and other members of the women groups who have adopted orthodox ways of collecting and storing urine in their homes. The challenge, however, has been the absence of laboratory tests of the urifert for safety and efficacy and clearance from relevant state regulatory authorities (this means the product may not be formally marketed). Product packaging will also need to be addressed.

The other ecosan products with the potential to generate income for the women groups that were yet to be exploited include soap (838 women have been trained in soap making), standard hand wash stations (suitable for public places such as schools, health facilities, markets, bus stations and restaurants), sitting pans (toilet seats) and reusable sanitary towels. When all sanitation ambassadors are trained in the production of reusable sanitary towels such can be produced in larger quantities, popularised, and sold for income generation.

With improved toilet versions leading to the use of toilet pans rather than squatting, there is an opportunity to train artisans in the production of ecosan toilets seating pans which can be sold to current and prospecting ecosan toilet owners.

On the following page WASH and Grow!
2021-23 Performance Analysis

Project Outcomes	Indicators	Milestones	Comments
Ecological sanitation ambassadors and their families improve their hygiene and sanitation and suffer less illnesses	i. 24 ecological sanitation ambassadors have been identified and trained	i. 26 ambassadors trained on ecological sanitation and hygiene improvement	The project advisory committee (<i>consisting of nine members</i>) and project committees undertake regular monitoring events and ensure that toilets are properly used and that the correct information on toilet use is given to toilet owners.
	ii. 24 dry toilet interfaces have been built together with ambassadors' families	ii. 27 dry toilets constructed	
	iii. The toilets are in use, accessible to all and maintained well	iii. All dry toilets are in use and well-managed. Pit latrines which have been replaced by dry toilets are used to dispose of used sanitary materials.	
	iv. The amount of sanitation-related illnesses decreases	iv. Some health facilities reported a reduction in diarrhoeal diseases but have yet to place part of the success on the WASH and Grow! project	
	v. 24 soap-making workshops have been organized and beneficiaries are making their own soap.	v. 26 workshops conducted on soap making. 838 women were trained in soap making and they are making soap for household use.	
All toilet owners use ecological fertilizer and are not dependent on buying chemical fertilizers	i. 24 trainings conducted on the use of ecosan toilet products as fertilizer	i. 26 ambassadors have been trained on utilizing ecosan fertilizers (<i>only Urifert is widely used</i>)	Most of dry toilet chambers are closed to allow the recommended composting process. 2 Dry toilets are already producing ecosan fertilizer.
	ii. Decrease in use of chemical fertilizer as most dry toilet owners use compost	ii. Beneficiaries are in the transitioning phase to utilizing compost and urifert as fertilizer	
Knowledge of the construction, use and benefits of ecological dry toilets spreads in the area	i. A group of dry toilet constructors has been trained in building and maintenance	i. 8 male builders trained in dry toilet construction	i. No women were part of the trained dry toilet builders ii. The project plans to undertake a sanitation stakeholder mapping in the county, share reports and facilitate the creation of a county sanitation platform
	ii. 24 trainings about the rationale of ecological dry toilets have been conducted	ii. 26 trainings conducted about the rationale of ecosan toilets	
	iii. Three low-resolution instruction videos on dry toilets and ecosan benefits have been produced and marketed	iii. Three videos have been produced and shared with all relevant stakeholders including the county health department and all sanitation ambassadors	
	iv. Sanitation ambassadors have attended the county's Sanitation Fora	iv. The county sanitation forum was not established due to covid pandemic. However, Ambassadors have participated in several exhibitions organized by other like-minded non-government organizations and annual WASH workshops. The project collaborated with the government to participate in the annual Sanitation and Hygiene Day. Organized events to bring together different actors to sensitize and market the dry toilet concept and report on the progress made by the project in its implementation	
	v. Two radio adverts have been made	v. No radio adverts done	
Menstrual hygiene improves	i. 24 workshops about menstruation hygiene are organised	i. 30 workshops were conducted, (<i>26 with women groups, 2 workshops with adolescent girls, 1 workshop with boys and 1 with men</i>)	i. Production of reusable sanitary towels training has since taken place. 40 women have been trained (<i>March 2024</i>) ii. Men expressed ignorance on menstrual issues as they lack menstruation information because women in the family do not usually discuss matters of menstruation with husbands and boy children. iii. The project plans to bring women and men together to discuss issues of menstrual hygiene in order to break cultural barriers
	ii. New way(s) to improve menstruation hygiene have been identified jointly among project partners	ii. Toilet owners keep a basket where used menstruation materials can be disposed of.	
	iii. Dry toilets have necessary features for clean and comfortable menstruation hygiene	iii. Toilets have private washrooms where menstruating girls and women change the materials	
New business ideas related to ecological sanitation are being developed	Beneficiaries are selling sanitation-related products or services	The business development process is in its infancy, ecosan products are not on the market yet.	Trainings have been conducted for sanitation ambassadors on several ecosan products, but yet to be commercialised

VOICES FROM WASH&GROW! PROJECT

BENEFICIARIES

“Despite not owning a dry toilet, I collect urine from my family members. Each one goes to sleep with a container and in the morning the urine is aggregated into a larger container and processed into Urifert. I learnt this from a sanitation ambassador who happens to be my neighbor” **Veronica Ndunda**

“When the dry toilet concept was first introduced to us, the entire community including myself stigmatized it. But after being educated and seeing the benefits it brings, people are demanding more dry toilets. I am very grateful that the project has trained me into a Sanitation Ambassador. I have also been trained in agroforestry, soap making and making fertilizer from the dry toilet which will eliminate the use of chemical fertilizer, enhance soil fertility in my field and reduce the cost of production. The project should provide more knowledge on ecosan fertilizer application, marketing ecosan products and market linkages” **Elicaster Syombua Muli**

“I don’t own a toilet yet; however, I collect my own and my spouse’s urine which I process into Urifert and use in my banana orchard and backyard garden” **Lucia Mutinda**

“I had two different fields. I applied chemical fertilizer in one and ecosan fertilizer in another. When compared, the ecosan field did way better and crops were tastier than those from the other field where I applied chemical fertilizer” **Angelina Musyoka**

“Ecosan manure has long-lasting enrichment impact on the soil. I use the urine/water mixture ratio of 1:2. This is because the high concentration of urine in plants eliminates termites” **Jane Mutala**

“Due to poor soil type in my area (clay), pit latrines were collapsing more often. But I now own a dry toilet which is permanent, has no bad odour, is easy to clean and maintain, and it gives me fertilizer that I use in my fruit trees and garden. Dry toilets are, however, very costly for poor households to construct without the help of the project. There is a need to reduce the construction cost” **Peninnah Katunge Mutisya**

“I doubted the effectiveness of Urifert so I mixed it with chemical fertilizer as a way to boost my crops. I diluted 5 litres of water to 20 litres of urine” **Irene Mumbua**

CONCLUSION AND RECOMMENDATIONS

Appreciating that it is unrealistic to expect the project to achieve the overall long-term objective in its entirety in three years, it is important to recognise the strides made towards achieving the objective. The project constructed 27 ecosan toilets, exceeding the planned 24 toilets. This has significantly improved sanitation conditions for households that own the toilets. It is also clear that hygiene education has helped project members, even those who do not yet own ecosan toilets to improve sanitation conditions through the installation of handwashing gadgets with soap at their toilets.

Only 2 of the 27 toilets built had reached the composted stage as of the close of the year 2023. The full benefits of compost manure from the toilets are likely to be realised when the majority of the toilets have their compost ready for use. The desire by project members to experiment with the use of ecosan toilet products was further confirmed by the use of orthodox urine collection means such as individual household members collecting urine in smaller containers and depositing it into a larger container for processing into urifert. All project members interviewed had used urifert mainly for growing trees and to a smaller extent vegetables. It was also evident by the increased numbers of project members experimenting with the use of urifert that the acceptance level for ecosan toilet products for agriculture had significantly grown among project members.

It's to be noted that the agroforestry component was included in the WASH and Grow!!! -continuation project (2023-26) as it adds value to soil improvement, nutrition and general well-being of the natural environment.

There was, however, limited knowledge among non-project members including some health practitioners on the work of the WASH and Grow! project. This could partly be attributed to a low level of public awareness. Media engagement has been limited and much of the information disseminated by the project has been through interaction with participating groups and information shared through international or national commemorative events such as World Toilet Day, International Hand Washing Day etc.

It was evident that members of the women groups participating in the project were on a firm trajectory to fulfil their rights as equal citizens in society as evidenced by their ascendancy to leadership positions in influential civic and community structures.

CONCLUSION AND RECOMMENDATIONS

Based on the evaluation findings the following recommendations are drawn to be considered in the implementation of WASH and Grow! II – Green Growth in Kenya:

- The project needs to get ecosan compost manure and urifert tested for safety and efficacy by a recognised laboratory (preferably a state university) and obtain certification from the Kenya Bureau of Standards.
- There is a need to identify ways of reducing the construction cost of ecosan toilets to make them more affordable to the community members (households). However, it's to be noted that Fingo Powerbank experimentation on community-led innovations conducted in 2022 already explored solutions for this cost problem and 2 lower-cost pilot dry toilets were built within the experimentation.
- Engage research institution to test soil fertility levels before and after the application of ecosan fertilizers to ascertain the efficacy of the fertilizers
- WASH and Grow! II implementation to continue strengthening the working collaborations (with the county health department and other partners) established by the WASH and Grow! I project.
- Public spaces such as education centres (schools, skills training centres), health facilities and markets are ideal for ecosan product publicity and marketing.
- The project should publish a 'User guide' booklet preferably in the local language for ecosan toilet owners and prospective owners to ensure ecosan fertilizers are used according to stipulated guidelines.
- The project needs to put in place a more robust awareness and marketing plan, preferably by use of public media (radio, TV) and social media platforms.
- The project should facilitate the establishment of the county sanitation forum. The forum will provide an opportunity for the project team and ecosan ambassadors to promote the ecosan concept and market ecosan products.
- Marketing requires a well-packaged product so that it appeals to potential buyers. The project needs to design appropriate packaging for ecosan products.

