



# afrialliance socialinnovation

*EcoSan: improved sanitation & contribution to food security and water pollution control*

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## DESCRIPTION AND BACKGROUND

Water is recognized as a natural resource that plays an important role in sustainable development, but in recent years it has become a crisis in many African countries due to climate variability. Thus, it calls for innovative solutions geared towards mitigating these impacts.

The main problems identified in many Namibian communities, facing both urban and rural dwellers, are water supply and basic sanitation services. Against this background, the project aimed to provide small scale infrastructural and technical support to the rural communities to manage their water supply and sanitation facilities.

With an already severe surface water scarcity in the areas, the sanitation options used (pit latrines and open defecation) became the demise of the limited groundwater available. Water quality tests were conducted onsite using the basic HACH pocket tests for TDS, pH, nitrates, phosphates, ammonia. Other samples were sent off for bacteriological testing and confirmed contamination at a few water points.

In addition to pollution control measures, dry sanitation options were seen to be the ideal technologies to help remedy the situation provided that the users supported the choice and health and hygiene are ensured. These options, traditional and innovative, are also excellent in reducing water consumption at household levels. Another significant benefit of the ecological sanitation (Ecosan) dry sanitation concept is its contribution to food security at a subsistence scale through composting. This presents an opportunity to local contractors for growth in waste removal and compost production on a larger scale.

Financing is another challenge. Therefore, local needs and

## Abstract

Climate predictions indicate significant impacts on Africa's water and related resources, and Namibia is no exception. Extreme droughts due to low and variable rainfall, and high evaporation rates has led to competing uses for the available groundwater.

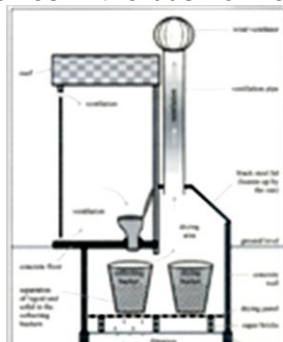
Although access to safe water and adequate sanitation is the foundation of development, many rural communities lag due to polluted available groundwater and inadequate sanitation facilities. Predominantly pit latrines, the biological contamination to groundwater bodies in some areas correlates the increase in water-borne diseases. Community health and livelihoods is thus impacted.

It is for this reason dry sanitation technologies became an ideal option to address water resources protection, health and environmental hygiene. The outputs of the proposed technology were also identified as a contribution to household food security.

## TECHNOLOGICAL SOLUTIONS

The basic concept of the ecosan systems is to utilize the available resources and save water, thereby closing the nutrient and water cycles with little loss of material and energy as possible. Dry sanitation technologies were the ideal options given the topography of the area, water scarcity, and the general livelihoods of the people. After presenting the various options available, the Otji-toilet was selected based on the functioning mechanism, aesthetics, cost efficiency as well as the benefit of reusing the biodegradable waste for food cultivation at household level.

In this regard, improved sanitation facilities translated to reduced pollution to the groundwater; health benefits; safety; food security and increased productivity at household level as members would no longer have to walk distances to relieve themselves in the bush or nearby communal pit latrines.



### Benefits of Otji-toilets:

- Save as much as 90, 000 Litres of water per household per year;
- Cost effective, easy to build and almost maintenance free;
- The separation of liquid and solid matter prevents odors;
- The biodegradable waste may be used as fertilizer.

## GOVERNANCE STRUCTURES

Decentralized and bottom-up approaches are ideal in implementing water resource management functions at basin level. The Department of Rural Water Supply and Sanitation Services, responsible for such services at the rural level, took part in the initiative and long-term maintenance relations were established. Representation by key stakeholders such as government officials, local authorities and political will is important to guide projects and align them to the country strategic objectives and targets yet it is still inadequate. Notwithstanding key players on the ground, civil society organisations and community or traditional leaders are useful when engaging rural communities. This channel of authority has worked well when introducing new initiatives in an area as communities are likely to heed to such authority. Overall, transparency and accountability should precede to achieve sustainable goals.

The following objectives framed the Namibian national water and sanitation policies and guided the project:

- Essential water supply and sanitation services should be available & accessible to all at an affordable cost.
- Improvement of services should be the combined efforts of the government and the beneficiaries, based on community involvement and participation and the acceptance of a mutual responsibility.
- Communities should have the right, with due regard for environmental needs and the resources available, to determine which solutions and service levels are acceptable to them.
- An environmentally sustainable development and utilisation of the water resources should be pursued in addressing the various needs.

## CAPACITY DEVELOPMENT

Education is instrumental. By raising awareness and the understanding of key challenges and drivers, behavioural change can be significantly addressed. The project invested in awareness creation campaigns and community meetings which provided a platform for the locals to ask questions, express their views, and gain more knowledge on different aspects of the technologies available. Furthermore, community training exercises and demonstration site visits contributed immensely to the smooth implementation of the initiatives.

The coordinating organisation facilitated the workshops, community meetings and trainings at different levels of authority where necessary. Owing to the high unemployment and poverty rates in the areas of implementation, the adage "*Learning by doing*" drove the need to also actively involve particularly the youth in the implementation phase. In the process, they learned the basics of a trade through constructing the sanitation facilities.



## SOCIAL INNOVATION

## BUSINESS ROAD MAP

Dry sanitation technologies not only provide a sustainable measure to protect the groundwater resources by eliminating or significantly reducing the volume of effluent/ leachate, but also opportunities for food security. The expansion of this initiative can provide a platform to local waste contractors to carry out composting at a larger scale and produce affordable fertilizer. In turn, this will create job opportunities for the area and promote household or community gardens.

Community-based approaches and integrated social innovations are necessary for long-term targeted support, especially in rural areas. However, the support framework should be defined. This includes, but not limited to, the scope and time frame of support, technical advice and guidance, and on-site capacity building.

Rolling out dry sanitation technologies to other parts of the country to ensure adequate and safe access to these services, will contribute to the milestones as mandated in the country's legislative framework.

Monitoring and evaluation of the impact of the improved sanitation facilities need to be strengthened and quantified to realize the value and sustainability aspects. The long-term goal should however aim at transforming these communities into resilient, sustainable, and low carbon societies.

It is evident that inadequate water supply, access to potable water and poor sanitation facilities continue to pose a health hazard in communities, more especially to the poor. Hence, provision of water and basic sanitation should be an obligation to sustain them.

Taking into account climate predictions, the interrelations between water, sanitation, health and livelihoods cannot be over-emphasized. This justifies and motivates for social innovations to integrate solutions for mitigating the current and future impacts of climate change.

Key factors to consider in achieving sustainability includes information dissemination on integrated water management and sanitation practices, capacity building and ensuring active community participation in implementation and decision-making processes. By enhancing their understanding of the issues, it will drive local action to curb water pollution and improve community health and food security.

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3. Afrialliance. Social Innovation Factsheet #1.5. *Monitoring water pollution from industries and urban areas to protect human health and ecosystems.*
4. Afrialliance. Social Innovation Factsheet #1.5. *Monitoring of water availability in forms of quality and quantity for food security.*
5. DRFN (2011): *Improving Water Quality and Sanitation in Rural Namibian Communities*
6. *Namibia National Sanitation Strategy 2010/2011-2014/2015, Second Draft*

