afrialliance socialinnovation

AfriAlliance MOOC#2 Final Assignment

Title: *Saving water with little to no funding*

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DESCRIPTION AND BACKGROUND

Some parts of the world are currently experiencing some form of water shortage, either due to lack of water infrastructure or climate change. My home country Lesotho is no exception to these two challenges. For this reason, it is very crucial to save every drop of water currently available in our communities.

From an observation that I have made here in Lesotho, I realised that in most rural areas and in public spaces such as schools, water is provided through shared taps. So what happens is, due to a large number of people who use these taps, a lot of water goes to waste. Water is usually lost or wasted in three main ways:

- In-between uses, there is some water which spills from the tap and that water is normally not repurposed.
- Manually operated (hand pumped) groundwater taps do not have a standard number of rotations for a particular quantity of water, therefore water ends up going to waste due to the unintentional over-pumping.
- Water used to wash hands or wash water containers is never re-purposed as well, therefore it goes to waste.

This water which is lost through spills or water which is not repurposed is referred to as “overspill” in this case study.

Designing advanced water infrastructure would be an ideal solution to avoid having overspills, however, given the fact that in most cases funding is not easily attainable, it is best to look into a solution which requires readily and locally available materials. Hence the idea of constructing conservation wells very close to these shared taps.

This idea was not only inspired by the water losses I have witnessed in some parts of our rural villages, but it was also motivated by a case study that I came across in module 4 (Social Innovation and climate-proof IWRM) of the AfriAlliance MOOC: Social Innovation in Water & Climate Change in Africa, entitled Multiple Uses of Water in Madagascar drinking water – agriculture – livestock.

In this case study, overspills will be channeled from the tap to the conservation well. The construction of these wells will require locally available materials such as rocks, sand, crushed stone and water. What will require funding at most is cement and reinforcing steel (if required).

Almost each and every village has someone or plenty of people who have Worked in construction. This will be an added advantage to the project as their expertise will come in handy.

Water from the conservation well will be used for various household uses such as gardening, washing cars, laundry etc, depending on the water quality. The condition of water in the conservation well and the quality of water in the well will be monitored and maintained on a regular basis.

Abstract

Shared water collection points such as community taps in our villages and school taps are some of the areas where water can be wasted due to overspills. In the context of this case study, an overspill is clean water that spills from the tap in-between uses, or water that is only used for one purpose while it can be repurposed.

To avoid this waste of water, conservation wells can be constructed nearby the taps. Water from these conservation wells will be repuposed for things like ; gardening, washing cars and laundry, livestock farming etc.

To easily implement this project without major funding, locally sourced materials such as rocks, sand, crushed stone, and water can be used for the construction of these wells. The only materials that will require to be bought are cement and reinforcing steel (if required).

Another plan will be to involve the youth as much as possible. This will ensure that the knowledge that will be applied and shared will be easily transferred to the next generations.

Overspill

In the context of this case study, an overspill is water lost through spills at the tap or water which is not repurposed.

The youth will mainly be encouraged to be involved with the project during the school holidays and over weekends, with the hope of inspiring them to come up with better and advanced solutions to conserve and develop water resources and water supply systems.

The stakeholders will consist of people from different backgrounds and professions, so that their expertise can be applied within the project, to avoid incurring extra costs from outsourcing.

In order to implement this project effectively and efficiently, application of the four AfriAlliance Social Innovation dimensions; Technological Solutions, Capacity Development, Governance Structures and Business Road Map will Ensure a well-structured and smooth operation throughout the project.

These Social Innovation dimensions are clearly explained in module 2 (Social Innovation: the AfriAlliance Approach) of the AfriAlliance MOOC: Social Innovation in Water & Climate Change in Africa.

Conservation Well

- A conservation well is a concrete or stone pitch well, constructed to store overspills from shared taps.
- Conservation wells can come in different shapes and sizes depending on the available space and the quantity of overspill respectively

TECHNOLOGICAL SOLUTIONS

In instances where there will be little to no funding, it is always best to apply simple and already existing technologies. Therefore, the same concept will be applied in this project. A simple hydraulic and structural design of Conservation wells, which requires locally available materials will be applied. Materials such as rocks, sand, water are available for free in most areas. Of course permission to obtain these materials will have to be granted by the governing bodies. Only a few materials such as cement and reinforcing steel will have to be bought.

From the inception of the project, it will be ensured that the stakeholders also consist of hydraulic and or structural engineers who will offer their design and construction supervision expertise. The hydraulic designers will determine the quantity of overspill to expect for each tap, and the structural team will ensure that the channel and conservation well are structurally sound.

CAPACITY DEVELOPMENT

The community taps which require conservation wells have to be identified. Meetings that involve the whole community will be held to inform the community about the importance of water conservation, how the procedure will take place, and how the community will be involved.

While this project will benefit the whole community, it will focus more on passing on the knowledge to the youth. As early as during the design stage of the conservation wells, the stakeholders involved in the hydraulic and structural components will work with youth from these communities. Almost each and every village has one or a few people who have worked in construction. The stakeholders who have construction experience will be responsible for the construction of the conservation wells, while at the same time mentoring the youth.

In preparation for the post construction stage, a monitoring and maintenance committee will be selected and given training. Its duty will be to monitor the condition of the water in the wells, and any change in the quantity of overspills, water quality and facilitate the maintenance work.

The monitoring and observation committee will consist of youth representatives as well. This will ensure that the knowledge, skills and expertise will be transferred from generation to generation.

With the work, knowledge sharing and problem solving that the stakeholders will engage in, one of the main goals will be to inspire the youth to come up with better and more advanced innovations for the water and climate change challenges the world is currently facing.

SOCIAL INNOVATION

GOVERNANCE STRUCTURES

Any form of hydraulic or structural design needs to be done in accordance with standards and project specifications. Therefore, certified engineers and experts will be responsible for the design and construction supervision component of the project, and they will be the ones with authority to give the green light on the construction works.

Appropriate governing and guiding policies will be followed when it comes to monitoring the quality and condition of water in the conservation well. The stakeholders, including the local communities, will also compile a guidelines booklet, which will be very useful for the monitoring and maintenance stage.

This booklet will be in-line with the local and global policies on water quality monitoring, water resources management, water conservation, maintenance of water structures, e.t.c. The booklet will also be project specific and provide guidelines on the frequency of water quality monitoring, procedures and tools to use, how to maintain the conservation wells and procedures to follow when electing the new monitoring and observation committee.

BUSINESS ROAD MAP

This conservation well technology will be applied in areas where funding is not easily attainable. Therefore, locally available or readily available materials (rocks, sand, water, some aggregates) will be used for construction.

Most of the stakeholders (from water governing bodies, engineers, water experts, people with construction experience and the communities) will be working on goodwill basis as there will be little to no funding.

On the other hand, there will be business opportunities for providers of materials which are not readily available, such as cement and reinforcing steel/mesh.

Summary

A lot of communities continue to experience years long challenges related to water and climate change because, either they are waiting for funding or awaiting more advanced solutions.

However, this case study demonstrates that readily and locally available materials can be used to address these challenges. Also, technologies that are already in existence can be applied. Of course, applying well advanced technologies or obtaining funding would make things a hundred times easier, however things do not always work that way. So while waiting for the latest innovation it is best to use whatever is available.

Taking the simple technologies and combining them with the three non-technological AfriAlliance Social Innovation dimensions ensures that the needs of all stakeholders are answered.

The Technological Solutions dimension addresses the challenge at hand. In this case study for example, the long existing hydraulic and structural design techniques are applied to design a structure that will collect and store water that normally goes to waste. This means that the overspills stored in the conservation well will alleviate the groundwater source, as there will be plenty of water (which normally goes to waste) available.

The Capacity Development aspect of the AfriAlliance Social Innovation dimensions ensures that each and every stakeholder understands the challenge that is being addressed and the procedures that will be followed. It also ensures that each and every member of the team has a role to play, which is normally their area of expertise or where their strengths lie. Another important component of the Capacity Development is the involvement of the members of the community throughout the whole project. This case study in particular focuses more on the involvement of the youth, with the hope inspiring the young to come up with more advanced innovative ideas and ensuring the maintenance and monitoring of the conservation wells continues into the next generations.

The Governance Structures Social Innovation dimension reflects the importance of using the local and global standards and policies during the design and construction stages of the conservation wells, to ensure safety and good quality work. It also emphasizes the importance of stakeholders putting together their own regulations booklet, which will serve as a guideline even for the future generations.

The Business Road Map Social Innovation component of this case study shows that the aim is to work with whatever material that is locally and readily available. However, this will not always be the case as some materials such as cement need to be bought. Therefore, in this case suppliers will have be involved to cater for such materials.

Projects such as these may seem not be progressive due to the fact they use old technologies. However, instead of waiting for something which is not guaranteed, it is in the best interest of the communities to tackle the water and climate change challenges with what is available.

References

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