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**TRANSFORMATION TOWARDS SUSTAINABLE
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**Integrated water systems in the drylands:
using a multiple-use water services approach in Niger**

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This paper presents the preliminary results of a pilot project designed by Concern Worldwide in Niger, based on the Multiple-Use water Services approach (MUS). It presents the challenges met during the implementation phase: how to identify and take into account all the users of the water facilities; how to tackle the diversity of situations and the heterogeneity of the communities concerned by the pilot; how to prioritize the needs of the different users. The study confirms a high risk of contamination of the existing water sources and the potential for developing home gardens.

Introduction

The Multiple-use water services (MUS) approach is based on the idea that by looking at all water needs and available water resources holistically, it is possible to make more cost-effective and sustainable investments that generate a broader range of health and livelihood benefits than is possible with single-use systems (source: MUSGroup.net).

This approach is a relatively recent initiative within the development field. It is particularly pertinent for the resilience programme participants who are often faced with restricted access to water resources, or in some cases drought conditions. Indeed, in such context, water facilities are rarely used for one single purpose and tension often emerges between the different categories of users. MUS is an innovative approach in the sense that it brings together actors who would not normally work together (e.g. water management committees, farmers, medical centre staff) and encourages them to undertake a consultative approach to managing water resources.

MUS allows a more holistic approach to understanding the systems for water management as well as the multiple uses of, and needs for, water in any given community. It is a participative approach which aims to establish a joint action plan between all water users. This action plan defines the priorities in terms of renovation/construction of watering holes with multiple uses, and setting up and reinforcing capacities for the delivery of services linked to water. Every option presented is costed and jointly prioritised.

The approach recognises the fact that people need water, not just to survive and for their personal hygiene, but also to successfully engage in income generating activities.

Although, they were initially constructed to respond to domestic needs, most hydraulic works are used for agriculture, livestock farming or other sources of revenue. These multiple uses can put a lot of pressure on available water resources and can therefore threaten the long-term sustainability of those activities.

As well as increasing the availability of water, the MUS approach can lead to a decrease in conflict linked to competition for water (typically between livestock farmers and sedentary people), a reduction in the risks affecting human health, an increase in life expectancy of hydraulic works (by allowing better regulation of their use and better management in the long term), and it can offer new opportunities for economic development.

The approach is generally composed of six stages, similar to the project cycle, but it places more emphasis on the two initial phases: consultation and diagnosis.

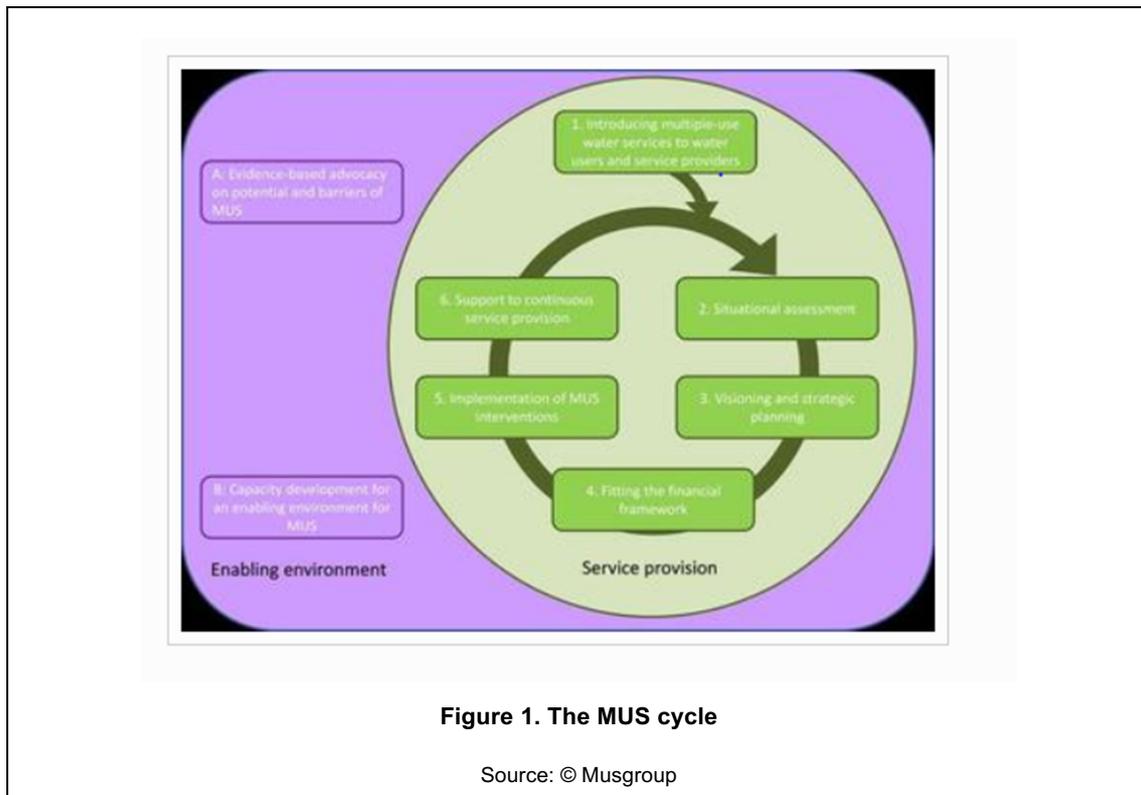


Figure 1. The MUS cycle

Source: © Musgroup

Currently, the MUS approach is used in very different contexts, from mountainous regions where water from lakes on the slopes flows with force like in Nepal, to arid lands which only see brief periods of intense rain followed by long dry periods, such as the countries of sub-Saharan Africa.

In Tahoua, a region of Niger, Concern initiated an approach like this by carrying out a brief survey centred on the multiple uses of water. This study included a household survey, a discussion in relation to water points, analysis of water samples, and other discussion groups. The discussions included classic questions regarding water for human consumption, sanitation, promotion of good-hygiene but also questions related to other uses of water.

Thus, although the team did not strictly follow the different stages of the MUS approach, it marks the start of a long-term effort to consider the multiple uses of water. To do this, the team will continue to borrow certain tools in the 'resource' section of the MUS website in programme design.

Initial results/lessons learned

Firstly, the study offered confirmation that multiple uses of water is already a reality. When an organization redevelops or constructs a watering hole for human consumption, this source serves other purposes too, most notably to water the herds of the pastoral population. Consequently, understanding the multiple uses of water is a necessity for effective programming.

Secondly, the study confirms that a high risk of contamination of water sources exists. A large majority of people (over 70 percent) rely on wells, and each of the samples tested (24 out of 24) revealed a high level of bacterial contamination. These results corroborate the observations made at water points: non-enclosed wells (73 percent); presence of waste around the source (44 percent); no drinking troughs for the animals (67 percent); location less than thirty meters away from a source of contamination (39 percent). These results underline the importance of adopting a holistic approach to the use of water in order to minimise contamination at communal water points.

Thirdly, the potential for developing home gardens emerged from the diagnosis. When asked the question 'do you think that you have a sufficient quantity of water for different uses', 75 percent of people responded that they do, with the notable exception of watering the garden at home (and water for cleaning the house).

When asked whether they would be prepared to pay more to have more water available, 75 percent said that they would be prepared to do so.

Lessons learned while carrying out the initial diagnosis

A certain number of valuable lessons can be taken from this first MUS:

- The difficulty of taking into account the needs and desires of everybody who use the water: the household survey obviously focused on interviewing with the sedentary population. Additional enquiries regarding watering points were put in place but did not allow for contact to be made with nomadic livestock farmers who were not present at the time the survey was being carried out. Consequently, we will need to adapt evaluation methods to engage the pastoral population in a more proactive manner.
- The complex situations encountered: by taking into account the multiple uses of water, we were obliged to include many factors such as hydrology, the nature of the soil for market gardening, economic opportunities, etc. Large disparities were observed between villages in the intervention zone which the averages calculated don't fully capture. In particular, it was noted that the bigger villages were over represented as they were often more prosperous and less constrained than the smaller villages in terms of their water resources.
- It has been agreed that it would be useful to establish maps permitting colour coded clarification of the variety of agro-ecological and economic conditions present: this would show zones where the rough depth of an underground reservoir, transhumance corridors, existence of local markets which allow for market gardening products to be sold, etc. These variations could then be taken into account during the planning of assessments and in prioritising interventions in each location.
- Seasonal variations: Rainfall climatology and the general manner of accessing water is a phenomenon which fluctuates according to the seasons. The study took place during the rainy season and although a certain number of the questions posed concerned seasonality, it appears that people had difficulty in recalling and/or articulating their experiences during the dry season.
- If this is confirmed, then it is recommended to plan another enquiry during the rainy season or, at the very least, to revise the way questions are asked in the future to help people better recall the realities of the previous season.

The next steps

First, the diagnosis must be refined, and maps established. Simultaneously, discussions must be started with the technical services of the state - the Departmental Hydraulic Directorate and Regional Hydraulic Directorate (DDH and DRH respectively) and exchanges organised to clarify the advantages and disadvantages of the various options which could be proposed during the prioritisation exercises in the villages. These will be organised in the form of plenary sessions in all the villages where Concern is supporting this multi-use water assessment and planning exercise.

During these sessions, the results of the study as well as the technical options (see below) will be presented to the different water users in order to prioritise a list of actions to submit to the local authorities, who in turn will submit to and advocate for support from the DDH and DRH. It is therefore, above all, an advocacy initiative and its success will be evaluated according to the number of requests from the two communes to the DDH and the DRH.

Principal options to be presented during the upcoming prioritisation exercises with communities

In villages where there is little or no surface water, systems which permit the retention of rain water will be emphasized. The programme has already proposed a number of systems for the retention of rain water: Zai, small semi-circular embankments surrounding the fields. Based on Concern's experience in Somaliland, the construction of small reservoirs will also be considered.

Finally, the team would like to look further into the potential for constructing big dams made of sand to capture run-off water from the watershed but as of yet, we do not have the expertise to identify suitable sites. All of these options will be discussed with the community during the prioritisation exercise.

Conclusion

In conclusion, the MUS approach prompted Concern Niger WASH Team to take a more holistic view of the water needs in its area of intervention and to open a dialogue in between different water users.

Facilitating this dialogue so as to define a common agreement on the priority needs and clear rules for the use of the water resource in context where its access is limited is a tricky process that require a good knowledge of the different socio-economic and cultural groups concerned.



Photograph 1. Covering water reservoirs with branches

Source: Concern Worldwide Somaliland



Photograph 2. water reservoirs for irrigation

Source: Concern worldwide Somaliland

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References

For a detailed explanation of the approach and the implementation tools: <https://www.musgroup.net/1>

Or

The FAO website: <http://www.fao.org/land-water/water/watergovernance/multiple-use-of-water/en/>

Contact details

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