Planning and Implementation of Multiple Use of Water Services (MUS)

Guidance Note – March 2021

Purpose

Water is a critical natural resource, and access to clean drinking water is a fundamental human right. Concern Worldwide works in the Water, Sanitation and Hygiene (WASH) sector in order to increase access to clean water in contexts where the water infrastructure and services are non-existent or very limited. These WASH activities aim to contribute to the achievement of good health and wellbeing of the extreme poor within the context of the water, sanitation and hygiene-related Sustainable Development Goal (SDG 6)[1]. However, people in both rural and urban areas utilise water for many different purposes, such as for domestic use (drinking, washing, cooking, sanitation), agriculture (watering livestock, irrigation) and off-farm livelihoods. Accordingly, Concern promotes the **Multiple Use of Water Services (MUS)** approach across WASH, Livelihood and Health and Nutrition programmes in multiple countries.

This guidance note introduces the concept and the operationalisation of MUS as an innovative approach that brings together the various actors and sectors by introducing a consultative process to maximise the efficiency of water usage, sustainability and cost-effectiveness. For Concern, this approach is particularly meaningful in water-scarce contexts like drylands, where households face difficulties in sustaining water resources to meet their needs, or in sub-humid contexts where water systems have the potential to meet larger demands. With the population growing and climate change impacting hydrological systems, meeting people's multiple demands for water will most likely become more challenging in the future.

This guidance note is targeted at Programme Directors, Managers and Advisors in both the WASH and livelihood sectors involved in the design and implementation of integrated and multi-sectorial programmes.

Issues in water interventions

When establishing any water system, whether a water pump or an irrigation scheme, issues around sustainability, governance and safety must be addressed during the design and implementation phases. Otherwise, there is significant risk to the long-term utilisation of that water system and the effectiveness of the investment. Some of the most common issues are as follows:

Poor management of boreholes Studies carried out on the management and functionality of boreholes built by government bodies and development agencies revealed that soon after installation a large portion of them no longer function or they are under private use. One of the main reasons for this is the low capacity of water management committees to perform routine maintenance, and enforce community contributions towards maintenance funds. Another major reason is poor governance around the use of boreholes and the consequent misappropriations by local leaders.[2] Other common issues are the difficulty in many fragile contexts to access adequate spare parts and / or the technical expertise needed for both the maintenance and the repair of boreholes. In addition, in the absence of a functioning market or regulations on such technical areas, mechanics may overcharge for their services, increasing maintenance costs.

[1] Concern Worldwide 2015, Water sanitation and hygiene strategy. January 2016 – December 2020.
[2] Grayson, C. and Crichton-Smith, H. 2020. District Sustainability Assessments for rural water supply services in Ethiopia, Malawi and Uganda. Executive Summary. UPGro: Hidden Crisis Project.

Poorly designed irrigation schemes:

Irrigation can greatly contribute to improved food security, by enabling crop production during the dry season or by satisfying crop water needs during short dry spells. However, the irrigation scheme needs to be developed using accurate hydrological assessments where water in-flows (recharge) and outflows (irrigation) based on field size, crop water requirements, soil and climate are analysed. Under Irish Aid funding (2017-2022) Concern Niger developed large-scale solar-powered irrigation schemes to promote vegetable production during the dry season. A number of deep wells were dug in each irrigation site with water pumped into a network of underground pipes to distribute water to the vegetable plots. However, during the first irrigation season some of these wells dried up before the end of the crop season, due to inaccurate calculations of water demand and supply for those sites, as well as potential over-pumping. As a result, the irrigation activity was reduced, leading to lower vegetable yields and lowered livelihood outcomes.

Figure 1 Water well functioning through solar power, Bambeye, Tahoua Region, Niger. Photo taken by Cecilia Benda (Nov 2019)

Competition over water resources: In drylands, seasonally-flooded lowland areas,[3] where water slowly recedes during the dry period, are often utilised for vegetable production. These areas are considered particularly suitable for growing vegetables as the crop can utilise residual soil moisture; additionally, the water table is easily accessible using shallow wells. However, such zones represent valuable grazing areas for pastoralists at times when they return from seasonal migration and need access to pasture for their livestock. In both the Chad and Sudan programmes, where Concern had been promoting vegetable production to support vulnerable households, conflicts over access to land and water in *wadis* arose between sedentary farmers and pastoralists. This single-use mode of planning and the low awareness on how different groups utilise key natural resources for their livelihoods at different times of the year demonstrates a lack of consultation with different user groups when planning interventions around water. Moreover, considering the negative impact of climate change on water resources combined with growing population pressure, competition for water will likely be exacerbated in future, thus increasing the need to promote equitable use systems.

Water source contamination: A recent study carried out by the Feinstein International Center at Tufts University in partnership with the Concern Chad programme explored how cyclical changes trigger drivers of acute malnutrition in Chad's Sila Province. The findings show that water contamination from water sources that are shared between livestock (cattle in particular) and people is a contributing factor to malnutrition in children[4]. A key recommendation of the study is that in complex agropastoral systems characterised by seasonal livestock migration and limited access to safe water, any water interventions would need to be undertaken across sectors in order to address the different demands for, and impact of, water on livelihoods, WASH, and nutrition.

[3] Seasonally flooded lowland areas have different names based on the region. For example across the Sahel region these are usually called "wadis", while in Southern Africa are called "dimba" (Malawi) or "dambo" (Zambia and Zimbabwe), and in West Africa they are called "bas-fond".

[4] Anastasia Marshak, Gwenaëlle Luc, Anne Radday, and Helen Young. Seasonality of Acute Malnutrition and its Drivers in Sila Province, Chad: a mixed methods analysis. Boston: Feinstein International Center, Tufts University, 2021.

Figure 2 Artisanal water well in Tabita (left) and water trough/ man-made reservoir for animals (right), Sila Province, Chad. Pictures extracted from Marshak et al. 2021

MUS approach

Introduction

The examples reported in the previous section show the complexity and the challenges of promoting water systems that are sustainable and consider the needs of different groups. It also demonstrates potential shortcomings of single use approaches for designing water systems. MUS promotes participatory, multi-sectorial and technical assessments to design improved water systems. It also provides a framework for consultation between all water users related to a specific community or watershed. The level at which MUS can be applied largely depends on the target community, but also on how water resources are shared among different communities. For example, when working at the community level we focus on matching the needs and the demands of targeted communities' households with available water resources in those communities. If water resources are shared with other downstream communities or interest groups (eg pastoralists), these groups' needs should also be considered, and the approach broadened to watershed or landscape level.

An extensive multi-country research on MUS studied water utilisation of individual users, including their livelihood activities, and assessed their relative benefits. It emerged that the extent to which water is used for livelihood activities is determined by the user's degree of access to water expressed by factors such as the water *quantity* and *quality*, as well as the *distance* between the water source and the point-of-use[5]. Actual use of water across the cases ranged from less than 17 litres per person per day (l/p/d) in villages in Ethiopia where fetching water involved a long roundtrip journey on foot, to over 200 l/p/d in communal systems in Colombia where water flowed through gravity-fed systems. However, in all cases people used the water for multiple purposes. Even in Ethiopia, where water utilisation was minimal, people used a few litres a day for a cow or to water fruit trees. However, with higher access to water, the extent to which water is used for multiple purposes increases disproportionally. Not surprisingly, as the distance between water sources and points-of-use increases, the quantities used decrease rapidly, and consequently limit livelihoods activities.

[5] Renwick, et. al, 2007, "Multiple Use Water Services for the Poor: Assessing the State of Knowledge," Winrock International: Arlington, VA.

MUS assesses the different water sources, their quality, quantity, reliability and distance from point of use, and it provides a pragmatic and participatory way to plan, design and establish water systems that are able to support different water uses in a more sustainable way[6]. MUS rationalises water use to secure long-term management and prioritize investments to generate a broader range of health and livelihood benefits than is possible with single use systems, increasing opportunities for livelihoods and thereby reducing poverty.

MUS aims at increasing the quantity of water available per capita, reducing the distance to water sources, and increasing access for more users to different water services.

Access to water at community level is determined by four interrelated factors: **technology (or infrastructure)**, **community-level institutions**, **financial arrangements** and **availability of water resources**[7]. These factors are also captured in the below conceptual framework of MUS operationalisation at different level (household, community, intermediate and national) (Fig.1), among the key aspects and enabling factors for a functioning MUS system. More information on the framework can be found in Smits et al. 2010.

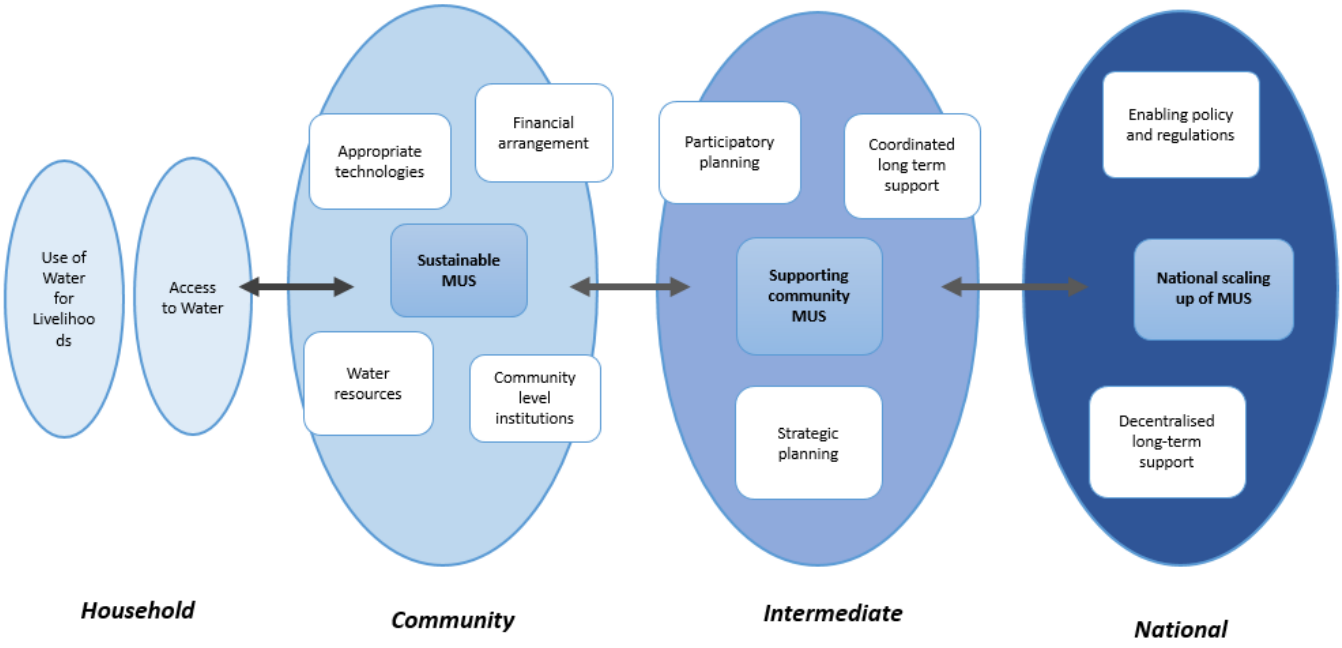

Figure 3 Conceptual framework for MUS. Adapted from Van Koppen et al., 2009a.

[6] https://www.musgroup.net/node/4
[7] Smits, S.; van Koppen, B.; Moriarty, P. and Butterworth, J. 2010. Multiple-use services as an alternative to rural water supply services: A characterisation of the approach. Water Alternatives 3(1): 102-121

To better describe the relation between access characteristics and the water needs that can be met, Smits et al 2010 developed the **"water ladder"** (see Figure 4 below). The ladder shows the different levels of water service, the level of water provision and use that can be accessed based on the volume of water available, and the distance between water points and point-of-use. For example, a *Basic Domestic* level of service provides on average 5-20 l/p/d to only fulfil very few domestic needs (drinking and washing) and water provision for a few livestock. As the ladder goes up, higher volumes of water can be accessed at closer water points, hence fulfilling multiple needs along with livelihood activities such as irrigation for a small garden, fruit trees, livestock, small enterprises, etc.

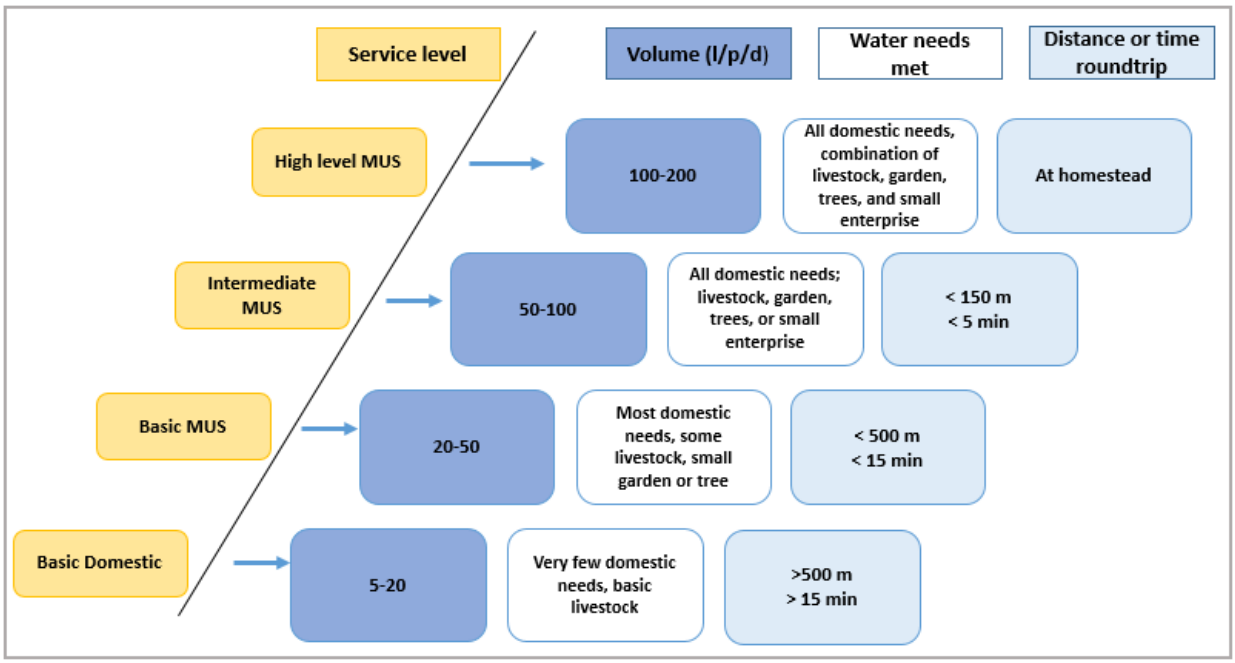

Figure 4 Multiple-use ladder. (based on Van Koppen and Hussain, 2007; Renwick et al., 2007).

Upgrading from a *Basic Domestic* to an *Intermediate MUS* level for instance would mean tripling current volumes supplied. In fact, accessing 50-100 l/p/d within a distance less than 150 metres from the point-of-use is the estimated access level needed for significant multiple uses of water at and around the homestead. It is worth noting that water quality is not included in the ladder diagram, but studies suggest that of the total volumes accessed, only 3–5 l/p/d would need to be of high enough quality for drinking and cooking. This is an important factor to consider when planning the technology options and their respective costs.

Is water demand for multiple uses being met? What are the barriers to meeting the demand, now and in the future? What is the potential to enhance multiple-use water services, taking into account the current and future water resources, infrastructure and demand? What are the main barriers to implement MUS?

Above are some of the questions that the MUS approach will try to answer when developing multiple use of water service. We will now look at the MUS programme stages in more detail.

MUS programme stages

The MUS approach follows the project cycle: analysis of the situation, prioritisation, implementation, and evaluation. However, each step of the cycle requires ample time to cater for the consultation process with the various water users. A **toolkit for planning, designing and implementing MUS** has been developed by the MUS group[8] presenting the steps as follows:

1. Introducing the approach;
2. Situational assessment;
3. Visioning and strategic planning;
4. Financing;
5. Implementation;
6. Supporting continuous services;

The toolkit is generic enough to be used in most contexts, but can be adapted to better fit specific country or programme requirements.

Phase 1: Introducing the approach

During this phase, the MUS concept is introduced in the community and among all stakeholders - water users and service providers. The main objective is to present the potential as well as the limitations of the MUS approach. In this initial stage, a broad identification of main livelihood activities, existing social and institutional arrangements, uses and demands for water, and existing water resources and infrastructure are envisaged. Such insights are then further developed and deepened in Phase 2 through a more detailed situational assessment. In addition, budgetary and resource restrictions are also discussed, in order to prevent raising unrealistic expectations. This entails indicating approximate available budgets and, above all, articulating the water uses and livelihood benefits that are envisaged to be met, and any predetermined technology. The guidelines and specific tools for Phase 1 can be found **here**.

Phase 2: Situational assessment

During the second phase, a series of in-depth assessments are carried out to provide a detailed overview of the current situation as well as potential future scenario for water services to help to develop realistic operational plans. These assessments include:

a. Assessment of water resources: This assessment involves checking the availability of: 1) Rainfall; 2) Surface water; and 3) Ground water resources. Each is assessed in terms of *quantity*, *quality*, *reliability,* and *accessibility* at different sites throughout the year. These evaluations can be done through a mix of secondary data, mapping of water sources, modelling and key-informant interviews.

b. Assessment of water infrastructure: This assessment is the mapping of both infrastructure and the services provided by them in terms of water *quantity, quality, reliability,* and *accessibility* and also includes a mapping of the managerial and governance arrangements related to the water infrastructure. This is usually done through a desk review of secondary data including project documents, the actual mapping of the water infrastructure, key-informant interviews, household surveys and village walks.

[8] The MUS Group is network of around 19 core organisations, including FAO, IFAD, Water Aid, CRS, ODI among others, and over 600 researchers and practitioners working on water issues in development contexts. The website provides a range of useful information, including background data, guidelines and tools for stakeholders' consultations and for gathering socio-economic and technical data, case studies, and evaluation and impact assessment reports of MUS projects around the world.

c. **Assessment of optimal water demand:** this assessment looks at current and future projected demands for water services in terms of quality, quantity, reliability and accessibility, and factors in the different purposes of water use: domestic, irrigation, livestock watering, small enterprise/ processing, such as food processing or brick making and any other use. All the different users and categories of people are assessed - for example, farmers and pastoralists. Information is collected through focus group discussions, key-informant interviews, and household surveys.

d. **Assessment of actual water use and barriers to accessing water services**: this assessment addresses the following questions:

- Who has access to which water sources and who is excluded?
- Who has right to which sources and when?
- Are there arrangements in place, such as water rights, to regulate this?
- What are the costs of accessing water services and benefits of water use?

Similar to stage (c), this is usually pursued through focus group discussions, key-informant interviews, and household surveys.

Conducting these four situational assessments will help with developing a clearer picture around current and future *water resources*, *infrastructure*, *demands* and *accesses*. Detailed situational assessment tools can be found **here.**

Phase 3: Visioning and strategic planning

People may have different demands for water and may use water in different ways and therefore it is essential that various strategic options are discussed when developing a common vision among all water-user groups and water service providers. This is done through a *three-steps process*. Firstly, a visioning exercise with community members and service providers is done with the objective of agreeing on a common long-term (15-20 years) vision on water systems and usage. Secondly, strategies and technical options are presented and for each costs, benefits, potential impact, and management arrangements are discussed. Thirdly, participants assess and prioritise the proposed strategies based on previous considerations and agreed criteria. The end result is a strategic plan for multiple-use water service provision, addressing people's multiple water needs taking into account gender and equity issues. Detailed information and tools for the visioning and strategic planning can be found **here**.

Phase 4: Financing

In Phase 4 the costs for the setting up and maintenance of the agreed multiple use of water services are matched with the financial resources that are available e.g. provided by the *government, donors, private sources and user fees.* Detailed information and tools for Phase 4 can be found **here**.

Phase 5: Implementation

The implementation phase deals with executing the strategic plan that was developed and agreed during Phase 3, and includes *developing an action plan; putting the infrastructure in place* and *supporting the governance and managerial system required.* This involves capacity building of service providers, establishing water committees, setting up a plan for prioritisation in case of water scarcity as well as a system for conflict management. Detailed information and specific tools for this phase can be found **here**.

Phase 6: Supporting continuous services

This final phase aims at providing follow-up support after the construction and establishment of water infrastructure and services, in terms of capacity development, technical assistance, and facilitation of dialogue among stakeholders. More information and tools for this phase can be found **here**.

The impacts of MUS

Sustainability & cost-effectiveness: An extensive comparative study on various MUS systems vis-a-vis single use water systems found that MUS systems are more likely to be sustainable over time. One reason is that multiple use services can generate higher incomes, which better contributes to ongoing operation, maintenance, and replacement costs. For example, an irrigation scheme developed through a MUS approach can provide water for a group of vulnerable farmers producing vegetables that can be both consumed and sold, thus generating an income for those households and contributing to poverty reduction. In addition, MUS better meets the multitude of community water needs, and the participatory approach applied reduces the potential for conflict over water and damage to infrastructure caused by "illegal" or unplanned uses. Overall, even though multiple-use services are more expensive than single-use services, they generate greater income and poverty reduction impacts, making them more cost-effective[9].

Livelihood and Resilience impacts: Rural households engage in livelihood activities such as rearing livestock, producing vegetables and fruits, processing and preparing foods, among others and to many, water is an essential productive asset. Studies show that the access to water determines the number of home gardens in a community, the number of livestock, and small-scale enterprises. Access to water supports more diversified livelihood activities and through this, communities are less vulnerable to shocks and are more resilient.[10]
The iWASH programme, a USAID-supported initiative implemented by the Global Water for Sustainability (GLOWS) consortium in Tanzania came to the same results. Households targeted by the iWASH programme were more likely to be undertaking and earning income from activities that require water, and through this, they were able to diversify their portfolio of income generating activities. The iWASH evaluation also found that women benefited from this; 67% of surveyed households in iWASH communities reported women earning half or more of their household's total income, as compared to 51% in control communities[11].

Health & Nutrition impacts: WASH and livelihoods are considered key sectors in the fight against malnutrition. The US-funded SPRING (Strengthening Partnerships, Results, and Innovations in Nutrition Globally) programme[12] sought to better understand WASH approaches and water strategies to create synergies between the agriculture and health sectors in order to reduce undernutrition at community and household level[13]. MUS was one of the key approaches selected for the review and the findings confirmed that the MUS approach can contribute to improved nutrition by facilitating access to safe drinking water and by providing water for agricultural purposes, leading to increased food production and diversification, resulting in higher agricultural income. The review also highlighted that if MUS aimed to achieve nutrition goals, nutrition related activities, indicators and outcomes had to be explicitly included.

Gender outcomes: Concern's Domestic Plus programme, which promoted integrated water use systems among vulnerable communities in Nepal, analysed the change in gender dynamics resulting from programme interventions. Even though the programme did not have a specific gender focus and did not influence changes regarding control over resources and decision-making power within the household, the study nonetheless highlighted positive changes in household gender dynamics. Following the

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[9] Renwick, et. al, 2007, "Multiple Use Water Services for the Poor: Assessing the State of Knowledge," Winrock International: Arlington, VA
[10] Ibid.
[11] Marks SJ, Schertenleib A, Kavura V, Vogt K, Ndyamukama M, Renwick, M. 2016. An Impact Evaluation of Multiple-Use Water Services in the Morogoro Region of Tanzania. The Sandec Department at Eawag and the Global Water for Sustainability Program (GLOWS). 39 pp.
[12] https://www.spring-nutrition.org/
[13] SPRING. 2014. Multiple-Use Water Services: Toward a Nutrition-Sensitive Approach. Arlington, VA: USAID Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) Project.

establishment of the new water system with water points closer to the household, women spent significantly less time fetching water and their workload was greatly reduced. By having water available for productive activities, men started to help women in their home garden work, despite men being traditionally engaged with field crop production, and this joint engagement led to more harmony at home. Women increased their level of participation and confidence in community activities resulting from the co-management of the new water scheme, by claiming access to water resources and programme benefits[14].

Challenges to implement a MUS programme

Multidisciplinary approach: Many programmes are still sectoral and even within more integrated programmes, collaboration among the various sectors is a challenge. Likewise, for designing and implementing a MUS approach as described for Phase 2 above, the close collaboration of the food security, nutrition and WASH teams is fundamental. Understanding and assessing all the water requirements amongst different groups requires a multidisciplinary team with different skills and expertise working together.

Participants' engagement and facilitation: The MUS approach largely relies on extensive consultation processes among community members and with different stakeholders. This is necessary to build ownership and a shared vision around the development of water systems in each community and beyond. However, these processes take time and require staff with excellent facilitation skills and experience in using Participatory Rural Appraisal (PRA) tools such as *focus groups discussion*, *visioning*, *transect walks*, and *community mapping.*

Concerns over the quality of water: Some MUS strategies are criticised as they promote the use of potable water for productive uses which is considered wasteful, and others enable people to access poor-quality irrigation water for domestic use, which is seen as irresponsible. There is also reluctance in using "grey water" from domestic work such as washing for irrigation, even though there are ways to make the use of grey water safe[15]. However, all these arguments fail to take into account that in reality people already use domestic water supplies for productive purposes like watering their home gardens, and use irrigation systems for domestic purposes. Through a MUS approach, which considers the various demands and designs water services accordingly, risks can be minimised by, for example, establishing low-cost point-of-use treatment of drinking water and by matching available water sources to appropriate uses based on water quality and other criteria.

Over-exploitation and depletion of water resources: The upgrade and expansion of a single use water system benefiting few to a multiple use water service targeting many comes with the risk of over-exploitation of water resources thus undermining the overall sustainability of the system. Therefore, performing technical assessments of hydrological regimes at the design stage is critical, along with assessing the potential demands from users, in order to plan a water system that can sustain all foreseen activities. Such assessments will need to take into consideration seasonal fluctuations of water resources and water needs.

[14] Adhikari, C and Gurung, S. (2010). Domestic PLUS: Adding up productivity to domestic WASH. A source book. Concern Worldwide Nepal.
[15] https://greywateraction.org/greywater-reuse/

Concern's experience on MUS

Integrated water use systems, such as MUS, have been piloted in Concern's country programmes, in Somaliland and Nepal and in others like in Niger, there have been some preliminary discussions around piloting the MUS approach. The variety of contexts, from mountainous regions where water from springs on the slopes flows with force (Nepal), to arid lands which only see brief periods of intense rain followed by long dry periods (Niger and Somaliland) shows that such an approach is applicable to very different ecological and water regimes contexts.

Domestic PLUS programme in Nepal

In Nepal, the sources of water are plenty and communities' water demands and needs always extend beyond that for just domestic water. In 2009, Concern in collaboration with two national partners (Nepal Water for Health and Karnali Integrated Rural Development and Research Centre) helped communities to improve the productive use of domestic water resources around the household. The programme focused on the homestead land community level and aimed at providing multiple sources of water for multiple uses. The intervention established an improved community water network able to provide access to more water that was closer to the household. This allowed the establishment of a range of small-scale activities that enabled people to grow more and more diverse food for household consumption and sale, keep livestock, and rear fish, among others. The main technologies piloted in the Domestic PLUS programme included ram pumps, rope pumps, rainwater harvesting, irrigation ponds, drip and sprinkler irrigation, and improved water mills. Depending on the water source capacity, the programme also promoted productive uses at community level, like medium scale irrigation for fields located away from homestead as well as small-scale electricity generation. The below pictures show the ranges of water services provided through the programme.

Figure 5 Tap stand in close proximity of a garden with possibility to use the overflow for irrigation (left); irrigation of a vegetable garden through sprinklers (right) in Nepal Domestic PLUS programme. Photo taken by Regine Kopplow (2009).

In accordance with the global concept of MUS, Domestic PLUS was an approach that met people's multiple water needs in an integrated manner whilst prioritizing and ensuring vital domestic water sources for consumption, basic sanitation and hygiene. However, the approach in Nepal emphasized the sanitation and hygiene component. In fact, with little additional cost, the programme promoted cooking gas, lights and fertilizers derived from attached biogas toilets. Similarly, composted human faeces and urine enriched with organic matter were promoted as fertilizers from 'ecosan' (urine diversion) toilets. A wide range of benefits at both household and community level were assessed, including time saving, improved health and nutrition, additional household income, improved school attendance and decreased labour migration. For more information on this programme have a look at the Domestic PLUS Source Book.

Figure 6 Fish pond (left); washing area with overflow directed to a nearby garden (right) in Nepal Domestic PLUS programme. Photo taken by Regine Kopplow (2009).

Integrated water system in Somaliland

Since 2012, the Irish Aid funded integrated programmes in Somaliland, namely SHERRIS (*Strengthening Household Economy and Reinforcing Resilience in Somaliland* 2012-2016) and then SPHERES (*Strengthening the Poorest Households' Economy & Resilience to Shocks* 2017-2022) have focused on the provision, collection and recycling of water across different sectors and areas of interventions. Somaliland is a very arid country, characterised by a deep underground water table and an annual precipitation ranging from as little as 50mm to 500mm with limited water reserves. In such a context, every drop of water that can be saved or provided can make a difference, whether for drinking, washing, growing food or rearing livestock. The programme team designed different interventions clearly linked to improving water provision in the target area. The most relevant interventions were in the WASH and the livelihood sectors. The below pictures show the different structures and facilities developed in target communities for different purposes.

Figure 7 - Berkhads are cemented reservoirs to collect rainwater that when combined with a system of filters or household water treatment products can provide water for drinking, washing and other domestic uses, mainly during the dry season. Photo taken by Martin Findlay (April 2019).

Figure 8 - Rainwater harvesting concrete tanks for schools to provide water for students and teachers. During dry periods, the water is also used to provide water to the larger community. Photo taken by Martin Findlay (April 2019).

Figure 9 - Water basins lined with plastic sheet with (left) or without (right) cover (to reduce evaporation). These structures are located beside tree orchards or gardens and provide water for irrigation during dry spells or the longer dry season. Photo taken by Cecilia Benda (2014).

MUS pilot in Niger

In Tahoua, a region of Niger, Concern carried out a pilot survey in two communities, centred on the multiple uses of water approach. The study included a household survey, interviews of different types of water users at water point level, analysis of water samples, and focus group discussions. It covered water needs for human consumption, pastoralism, home gardening, agriculture and other income generating activities. As a result of this rapid assessment, the following options were identified and discussed with the team:

- In villages where there is little or no surface water, systems which permit the retention of rainfall should be emphasized. The programme proposed a number of systems for the retention of rainfall, such as zai-pit at field level, and half-moon structures (small semi-circular embankments) for planting of crops and trees in open land. The construction of small reservoirs was also considered.
- The construction of *sand dams* to capture run-off water from the watershed to be used for livestock watering or other productive activities was among the options discussed with the community during the prioritisation exercise. It was recognised that this would be a longer-term project requiring significant budget, hence it would need specific funding.
- In terms of WASH infrastructure, construction of longer animal troughs was prioritised to provide separate access points for people and livestock, and to protect drinking water from animal contamination.
- The construction and rehabilitation of water points to develop income generating water uses was also considered. Nevertheless, these activities require a strong water yield to fit the different water demands and due to the particularities of the hydrogeological conditions in the area of intervention, it was found that such projects would require a budget beyond the current capacity of the programme and were put on hold.

Summary and Recommendations

The MUS approach is a cost-effective way to unlock the potential of water usage for different purposes to contribute to improved health and nutrition, livelihoods and resilience, as well as to promote more rational and sustainable management of water resources. MUS is a consultative process where the participation and active engagement of communities, water users and stakeholders plays a critical role in designing a new or upgraded water system. All MUS stages are well defined and each one is deemed necessary to achieve a large consensus, collect thorough information on a specific context, and to establish a proper planning process and a work plan for implementation, with the ultimate goal of achieving impact and sustainability. The MUS group website is a key resource as it presents a clear stepped approach with a wide range of practical tools and guidelines to put into practice, and that can be used and adapted when doing fieldwork. We would therefore advise anyone willing to know more about MUS or promote this approach in a project/ programme, to explore and get familiar with the website. In conclusion, it is worth highlighting some key recommendations to promote and implement the MUS approach, both at HQ and country level:

Promote the MUS approach: MUS is a relatively new concept for Concern and as with all new approaches will require awareness raising, internal discussions across country teams and departments, to get the interest and buy-in from country programmes. Moreover, being a multidisciplinary model means that different sectors will need to come together to discuss ways of collaborations and joint work. Opportunities for such engagement will be vital to pursue the MUS approach in Concern.

Invest in capacity building: MUS is a staged approach and staff need to be aware of the different phases, the activities involved, the tools available and the final goal that each stage is supposed to achieve. Staff capacity building on this approach, through trainings, webinars, and sharing of resources and information, will be critical to pilot and promote MUS across country programmes.

Build strong facilitators: Active engagement and broad participation from a range of actors and stakeholders is a requirement for establishing sustainable and successful MUS system. This requires strong facilitation and negotiation skills to lead the consultative processes amongst the various actors, and for this reason, building strong facilitators should be a priority for leading and implementing agencies.

Engage with partners, agencies and alliances: Joining relevant networks and building strategic alliances through partnerships or consortia, both at country and at global level, in particular with agencies already engaged in similar integrated approaches on water systems, can greatly support MUS promotion in Concern programming. This would allow opportunities for cross learning along with increasing funding opportunities.

Advocate for government MUS system co-financing: An active involvement of local communities, authorities and government bodies is critical to build ownership and hence to achieve sustainability. Each local actor should contribute to the development of a water system with the level and types of resources that are appropriate for their economic capabilities. For example, communities could provide labour power and be responsible for the maintenance costs, while regional or national government bodies should contribute financially through their budget to the initial higher installation costs. Even though drawing a one-size-fits-all financing model is very difficult as contexts differ, all parties whenever possible should contribute with a fair share of the costs.

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