Assessing Options for Integrating Multiple Use of Water Service: MUS Group Technical Visit Report to the RAIN Foundation Rain Water Harvesting Project in Southern Ethiopia

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Acronyms

AFD:	Action for Development
ERHA:	Ethiopian Rain Water Harvesting Association
HCS:	Hararghe Catholic Secretariat
RiPPLE:	Research Inspired Policy and Practice Learning in Ethiopia and the Nile Region
MoWRD:	Ministry of Water Resources Development
PHAST:	Participatory hygiene and Sanitation Transformation
CHAST:	Child Hygiene and Sanitation Training

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Summary
The MUS group has secured resource and created opportunity for members for piloting technical support among members. Based on this opportunity, the RAIN foundation requested technical support on the integration of MUS in to their rain water harvesting activities in Southern Ethiopia. The voluntary technical support was accepted by Hararghe Catholic Secretariat/ RiPPLE based on the long experience in the sector and a team of experts visited Southern Ethiopia rain water harvesting projects in Borana zone, Yabelo and Dire Districts from 3 to 6 August 2009. The objective of the visit was to explore the opportunities for integrating MUS in the ongoing as well as upcoming rain water harvesting activities of RAIN Foundation and its partners.

The technical support team visited the water harvesting sites (four sites) and discussed with ERHA, AFD and user community. The technical team has encouraged by the extraordinary work of RAIN and its partners in reaching the needy with the available rain water harvesting options. The work was technically sound and attracted attention of government and other implementing partners.

The program has to continue its similar programming. There is potential for incorporating MUS component which includes water for livestock, sanitation, appropriate household latrine and water quality testing. There are different approach and strategies which could be adopted for the promotion.

In order to effectively and sustainably address the pastoralist livelihood the consideration of the following MUS component have been suggested based on the observation (not in priority order): (1) improved access to domestic use and water quality monitoring (2) Sanitation and hygiene; (3) livestock water; In addition the awareness on hygiene and sanitation, as well as water management has to be further reinforced through refresher training.
The assessment revealed that incorporating MUS in the existing systems and new plan will be cost effective way of reaching more use like water for livestock and sanitation. In terms of sanitation, there is a need for strongly focusing on the software part as the demand for the sanitation in the pastoral areas is not well perceived. The use of PHAST, CHAST, and other community based approached used by various partners can be adopted. RiPPLE have conducted action research on sustainability and behavioral aspect of sanitation which could be an input for future RAIN efforts.

I. Introduction

A rapid assessment was made to the RAIN, AFD and ERHA rain water harvesting project in Borana zone, Yabelo and Dire Weredas (Districts) from 3 to 6 August 2009. The objective of the visit was to explore the opportunities for integrating MUS in the ongoing and new planning of rain water harvesting activities of RAIN Foundation and its partners.

The visit was commissioned by MUS group as part of plan to create linkage among MUS group member institutions through voluntary technical support. The visit was lead by Hararghe Catholic Secretariat (HCS/RiPPLE) who have long years of experience in the implementation of MUS in Ethiopia.

2. Methodology

The technical support team visited the water harvesting sites (four sites) and discussed with ERHA, AFD and user community. The zonal water office and regional water bureau has been also contacted. The zonal water office provided necessary information related to the water and sanitation in the zone and had positive opinion about the project. They were closely working with AFD.

A site discussion was a very good learning opportunities based on the different options and agreed on possible scaling up to MUS. The upgrading to MUS will enable to meet the additional need of the pastoralist (water for livestock) which intern contributes to the sustainability of the structure and quality of the water.

The report presented discussion of observation and recommendations combined in each MUS component. The recommendation has also considered the experience of HCS team in operational region.

3. Context of Borana Pastoralist and Water Security

Borana zone is characterized by arid low land agro climatic condition and water is one of the critical problems affecting the livelihood of the community. During the dry season the pastoralists have to travel over 2 days for watering their animal. The women carry water on their back for about 10 to 15 kms for domestic use. The case of "*Compo"* village community can be mentioned as an example who travel about 28km to "*Dublok"* motorized scheme with their animal during dry season. The uses shifts from pond, to Cistern and then to furthest borehole as the dry season gets sever. Cisterns do not cover the demand of water for livestock.

The ongoing rain water harvesting activities has been well recognized by the government partners and the community. The training provided on water harvesting technology has contributed to create better awareness by various institutions. Similarly most of the systems are functional and used as an evidence to demonstrate the rain water harvesting options.

4. Discussion of Observation and Recommendations

4.1 Domestic Use of Water by Design

The RAIN foundation and its partners involved in rain water harvesting activities in these remote pastoralist areas since 2007. There are 5 sand dams and 10 cisterns (below ground tanks) exclusively designed for domestic use and constructed in the visited project areas. The site

selection and the commitment of AFD and ERHA are commendable in achieving the result observed on the construction and software components. The sand dams supported by Swiss Re and the below ground tanks support by a4a through RAIN foundation has reached the most needy people. The intervention options found to have a multiple use and impacts.

The "*Ogan"* valley sand dam is one of the sites visited. Originally the project was meant for domestic use (no livestock). The MUS visit realized that the structures are largely being used for livestock, so the existing and new projects need to explore options to adapt MUS.

As reported by the community and AFD the sand dam is under use for almost a year. The team could not able to make detail impact study however the short community discussion proofed the access to the sand dam water had significant contribution. It has reduced the long distance travel in search of water for domestic and livestock use.

The pastoralist dug a pond on the sand dam harvesting catchment areas and feeding their animal with traditional earthen cattle trough. This will create evaporation loss, contamination of water for drinking and damage on the structures. After each flood the pastoralists need to dig about 10m.cu pond and about 15 m long earthen cattle trough which is regular. Thus the existing practice provided evidence for creating consensus among AFD, ERHA and the rest visiting team for considering livestock water in the existing and new designs.

The original water project design have been planned to address domestic use of water. However after the water has been harvested and stored in the dam, the pastoralists demanded to use the water not only for domestic use but also for their livestock (productive use) and close washing (sanitation). This is provided an important lesson for the MUS integration right from design stage.

In addition in the settlement areas the demand of water for domestic uses, sanitation and hygiene is increasing. Hence the water project planning need to take these in to account in order to avoid conflict among users and uses. As discussed on the site some of the livestock water consideration will going to be addressed during the planned rehabilitation in 2009. The recommendations are partly depends on the experiences in HCS operation areas.

Recommendations

- The RAIN foundation needs to continue with its effort towards the expansion of these water points as still there is huge gap to get water for domestic use throughout the year at reasonable distance. A case studies at household and community level has to be documented and shared to donors to provide evidence on the successful contribution of the project on the livelihood of the community specially women and children. The case study could be discussed and planned with partner institutions.
- In addition the water quality has to be checked to make sure the suitability for human consumption. The current effort of AFD and ERHA to check the quality of the water has to continue on regular basis. The pollution could be prevented by discussing with the community to keep animals away from the places of water for human consumption especially in the sand water storage site.

- Awareness on the need to improve the quality of human-consumed water once brought home seems inadequate. Moreover, the share of 'safe-looking' water sources in the wet season sharply declines, implying that choice of water source is determined by proximity and not necessarily quality aspects of the source. This suggests the need for coordinated awareness campaign.
- The MUS approach addresses the do-no-harm principle. Unless proper consideration is made during the designing, multiple demands create a pressure on water system designed for single use. The community has to be made fully aware on the available water level to reduce over competition on domestic uses. Precaution has to be taken not to displace domestic users by other users. This is the user decision but creating awareness for informed decision could be facilitated with partners.
- An action research linkage with RiPPLE and MUS group might be interesting for any upcoming proposals for identifying and promoting best practices. In order to achieve policy level impacts an engagement with the MOWRD and regional water bureaus and other CSO has to be strengthened.

4.2 Water for Livestock

The use of the water by livestock in the storage catchment, open defecation along the runoff catchment has negative consequence on the quality of the water. The technically team recognized the effect of livestock coming close to the sand dam on the quality as well as the structure. However it will be difficult for one to stop them from using the water for their priority needs as there are limited options. A proper analysis of the volume of water has to be made in order to balance with the users and uses over time. The over use by the livestock might create pressure on domestic use and women turn to travel long to meet their household needs.

Recommendation

- A hardware and soft ware solutions has been discussed on the site. The software component will be creating the better level of awareness on water quality, maintenance and use. The key software however will be to thoroughly discuss with the community on meeting their priority needs. The hardware solution requires a proper design to make water drain in to the sides of the dam and stored for use. The community can manually feed their animal on the cattle trough, use treadle pump, rope and washer pump, hand pump and other possible technologies. The location of new sand dam needs to take in to account the different priority users.
- The possible MUS components might not be achieved at the same time. For instance the sand dam water has to be developed before inviting different users. However the new planning has to incorporate the design for MUS. It will be an advantage to upgrade to MUS on an annual basis after harvesting adequate amount of water depending on the different users. A strategy needs to be developed on consideration of these alternative options.

4.3 Sanitation and Hygiene

There is no use and access to latrine at household level. This will result in contamination of water and other household facilities. Now a days there is growing risk of acute watery diarrhea

(AWD) in various part of the pastoralist community. Hence the consideration of household latrine will contribute to the prevention of this and other health risks.

It was also reported that the hygiene practice is almost non existence. Hence an attention has to be given to community awareness using an appropriate technology. There are easy community based participatory tools called participatory hygiene and sanitation transformation (PHAST) and child hygiene and sanitation training (CHAST). The tools could be used for all community members at village and the CHAST for children in school and in the village. Those tools has been widely used by HCS in similar conditions and proved successful in bringing about behavioral change. There is a module which will be updated based on the local socio-cultural situation. Close washing and bathing are rarely practiced by the community because of the access as well as lack of facilities. Hence it will be recommendable to incorporate close washing basins during the construction of water harvesting structures where feasible.

Recommendation: Cloth Washing Basin and Household toilet

- It will be important to consider close washing basin which could be used by caring water manually to the basin by women closer to the dam. This consideration will make easy linkage of washing (sanitation facility) for women. Improving awareness for women and saving their fetching time for other household and livestock management activities.
- There should be awareness rising to the community on hygiene practices. The water quality testing has to be also practiced to make sure the bacteriological and chemical composition of the water before and after development and on regular interval.

4.4 Water Management and Institutional Arrangement

Establishment of user association and insuring their participation from the very beginning believed key for sustainability. RAIN partners are doing a very good work in this connection considering the long standing traditional self management experience of the Borana pastoralists. The technical and management training has been provided in the developed water systems. The training of masons and artesian from the target community could build the local capacity for further development and maintenance. The effort in these software areas has to be developed and requires a regular follow up. The community contribution and fee collection for operation and maintenance has to be strengthened. AFD have already had the experience on the approach and further experience could be shared with HCS in similar activities.

4.5 Environmental Consideration and Water Resource Management

Watershed degradation creates a marked deterioration in the hydrological behavior of a water system which reduces the potential of land and water by causing a water flow of inferior quality, quantity and timing. The degradation resulted in the dwindling of water availability in the Borana areas which requires seriously thinking about soil, water, forestry and other resources. The increasing shift to farming has speeding up the removal of the vegetation cover. Watershed management is the integral part of MUS for all development surface and ground water options (pond, wells, and cisterns).

Hence the local institutions and authorities have to be made aware of the alarming trends. One project may not cover all the components but an institutional and sector linkage has to be encouraged. The PSNP could support the watershed protection and development. The traditional institutions can reinforce plans to protect and properly utilize the watershed.

The MUS considers the environmental impact of the water systems. In each MUS component the environmental impact has to be properly analyzed and mitigation measure /strategy incorporated. As reflected in the above section the water point development for livestock has to consider the distance between two water points and the concentration of livestock in the rainy and dry seasons to avoid rangeland degradation. Irrigation development has to also assess the downstream and upstream use and users. The developed water systems need to enhance multiple uses and users as much as possible without negatively impacting the environment. The water harvesting systems have significant positive contribution in recharging the ground water and protecting the watershed. Malaria is common in Borana. The water harvesting should not be used as breading area and an appropriate measure need to be planed from the very beginning.

5. Conclusion

In the Borana pastoralist areas water is the most limiting factor. Water for domestic, productive and hygienic use is scarce. The development planners usually focus water for domestic use with the priority for human consumptive uses. However the livelihood of the pastoralists depends on their livestock and would like to share what ever amount of water is available with their animal.

RAIN and its partners have done successful water harvesting systems (sand dams and cisterns) which are domestic use by design. However the pastoralists are using it for both domestic and livestock. There is potential to integrate MUS in the rain water harvesting activities from the very beginning of the design based on the ongoing multiple use by the pastoralists.

Hence it will be justifiable to conclude the possibility of MUS integration in the rain water harvesting program to meet key priorities of the pastoralist community. This requires additional investment in terms of developing more water harvesting systems to reduce the pressure and increase the lifespan of the sand dams to be used by livestock and human. In this connection an appropriate technology (hand pumps, treadle, and rope and washer pumps) could be used to providing access to water for various users.

The development of local skills, coordination with the local government and the capacity building activities are commendable. The training and knowledge sharing on water harvesting systems have a demonstration effect to attract-in other government and non government agencies to scale up and out the potential water harvesting options.