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## **Question and Answer (Q&A) Document Operation and Maintenance of WASH Infrastructure Webinar Series Webinar #2**

**Question: Is the Training Manual publicly available? Are recordings of the trainings or the self-paced trainings accessible as well?**

**Answer:** The manual is available from the SADC-GMI. The contact person is Thokozani Dlamini ([thokozani@sadc-gmi.org](mailto:thokozani@sadc-gmi.org)).

**Question: Who is the audience target of the manual and learnings? Who is accountable for the maintenance and quality control?**

**Answer:** The O&M manual is a guide to assist water supply managers, technical staff, plant operators, water practitioners and others to manage groundwater infrastructure.

**Question: What are you doing locally for maintenance, for instance to support youth initiatives for employment promotion and job creation?**

**Answer:** The norm is that during the procurement of water infrastructure projects in South Africa for example, there is a localization requirement that includes youth employment and training during the building of infrastructure projects.

**Question: Do you have best practices of ground water, infrastructure maintenance in Sub-Saharan Africa?**

**Answer:** The FundiFix model is an example of good practice. The model works with government, communities and investors to maintain groundwater infrastructure. This approach uses the idea of “scale reduces risk” whereby economies of scale can be achieved if all rural water points are networked in one system, allowing for improved service delivery at lower costs. The model requires communities to subscribe to a service contract with regular payments. The FundiFix model is also partly funded by the Water Service Maintenance Trust Fund (WSTM), which channels financing from donor organizations, public financiers and other investors. FundiFix applies for O&M gap financing from the WSTM every six months, which releases funds based on achievement of pre-identified performance targets. Local companies and entrepreneurs are employed to repair rural water infrastructure with the guarantee of repairs being completed in 3 days (if not, communities are awarded a free month of service).

This performance-based approach ensures ongoing payment of fees by communities and builds trust between the communities and entrepreneurs. The model, through its economies of scale approach, ensures that all water infrastructure is maintained.

Lockwood, H., 2019. *Sustaining rural water: A comparative study of maintenance models for community-managed schemes*. USAID, p. 90.

**Question: In the light of advancement in technology -alternative energy sources (solar power)- does the manual have contents to support O&M in deep field locations (rural areas) where the technical know-how could be minimal?**

**Answer:** We consider the appropriation of the technologies. Pumping of groundwater requires energy and potential energy sources include solar, diesel, and grid connected. Solar and diesel pumping systems are preferred in rural regions that lack a grid connection, something that is common in most rural parts of SADC. While diesel and solar-powered pumps are popular for this reason, both have their advantages and disadvantages. Solar-powered pumps, despite their high investment costs, have a longer life expectancy than diesel-powered pumps and can produce electricity for even longer than 25 years. Theft is a major challenge for solar-powered pumps with solar panels being highly sought after and an easy steal for criminals. Solar-powered borehole pumps are mostly supplied as submersible centrifugal borehole pumps. The solar borehole pump installation consists of three main components, the borehole pump, the solar panel array to power the pump and a controller. While most solar pump motors operate on direct current (DC) some can be supplied with alternating current (AC) but then an alternator is also required to convert the DC from the solar panels to AC. Storing power in a battery and using it at a later stage has a low efficiency. For that reason, rather than store the power, it is more efficient to pump water when the sun is shining and store the pumped water in a reservoir.

**Question: What is the management model of these water supply systems (community-based, public, private...)?**

**Answer:** In the SADC region, there is a large variety of groundwater schemes and technologies, ranging from relatively simple spring protections and hand-dug wells equipped with ropes and buckets, to more sophisticated hand pumps and mechanized boreholes. At the upper level of complexity are multi-borehole schemes with storage buffers and extensive reticulation serving large areas, with complex operation and maintenance characteristics. Three O&M management systems are identified: centrally managed, community managed and household managed. O&M of groundwater supplies, mainly a local community responsibility, retains a degree of support in the SADC region. This is partly because community management avoids the need to engage with complex and often unreliable local government and other "outside" structures.

**Question: Can you describe any inspiring O&M models you have found that seem most appropriate for rural contexts?**

**Answer:** The fundi-fix model described above.

**Question: Do you have e-learning courses for pump maintenance and solar technology?**

**Answer:** No.

**Question: Where do you plan to organize trainings in the future?**

**Answer:** Follow-up training is envisaged for the French and Portuguese speaking countries of SADC. Once the COVID pandemic is settled then a proper planning can be done in this regard.

**Question: Are your trainings free?**

**Answer:** Normally, yes.

**Question: For programs that support rural water services, but are not able to operationalize a full O&M system (either due to time or resources), what components of the O&M circle (from your slides) would you recommend focusing on?**

**Answer:** It is difficult to say, as it is very site specific. Many factors would undermine groundwater infrastructure sustainability. Such as the project that only increased the number of water points, or sanitation facilities, as a way of improving accessibility to these services, without considering the wider range of factors needed to sustain the benefits.