

## **“Sunny times for water”**

### **A solar-powered gravity water supply scheme**

**CARD, Malawi**

#### **Contact details:**

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#### **Description of the practice:**

##### **Name of the practice:**

Sunny times for Water: Solar-powered gravity water supply scheme

##### **Aim of the practice:**

Provision of safe drinking water & safe water for irrigation for food security

##### **Target group(s):**

Rural poor, specifically targeting isolated marginalised communities in semi-arid area where water is a scarce resource

##### **Partners involved:**

Private sector, ministry of agriculture, contractors, community, department of water

Roles and responsibilities of these partners:

- Private Sector – Provision of solar pumping systems
- Ministry of Agriculture – Technical expertise in use of water for irrigation.
- Contractors – installation of solar pumping systems.
- Community – community contribution – users
- Department of Water – Technical expertise in water supply and systems and provision of hygiene and sanitation education of water handling.

##### **Duration of practice:**

More than 1 year. The system has been operational since February 2010 and it is now being managed by the community.

##### **Financing (short/medium/long term):**

Short term (12 months)

**Brief outline of the practice:**

CARD Malawi, a member of ACT Alliance, addresses both water for food security and for safe drinking water / hygiene in a solar-powered gravity water supply scheme. This practice draws attention to the fact that water is a crucial prerequisite not only for the realization of the human right to water and sanitation but also for the human right to food. It demonstrates a successful attempt at addressing both concerns at the same time.

The programme employs a right based approach and emphasizes the inclusion of marginalised groups. For example, mechanisms are put in place involving the communities in drafting written bye-laws on how they will enable the elderly, orphans, chronically ill and people with disabilities to access free water.

Deep boreholes are drilled and water is pumped using solar power to raised tanks. Then water is allowed to flow by gravity from tanks to be used both for personal and domestic purposes and for irrigation. Four systems, benefitting 1430 people, have been installed.

Community members are being trained on management of the water scheme to ensure greater sustainability. The community is establishing a fund for maintenance of small breakdowns while the local government department of Water and Agriculture is also involved to ensure overall responsibility for long-term maintenance of the scheme.

**1. How does the practice meet the criterion of availability?**

**Explanatory note: Availability**

Availability refers to sufficient quantities, reliability and the continuity of supply. Water must be continuously available in a sufficient quantity for meeting personal and domestic requirements of drinking and personal hygiene as well as further personal and domestic uses such as cooking and food preparation, dish and laundry washing and cleaning. Individual requirements for water consumption vary, for instance due to level of activity, personal and health conditions or climatic and geographic conditions. There must also exist sufficient number of sanitation facilities (with associated services) within, or in the immediate vicinity, of each household, health or educational institution, public institution and place, and the workplace. There must be a sufficient number of sanitation facilities to ensure that waiting times are not unreasonably long.

**Answer:**

Although the project is being piloted it has proven to provide enough water for drinking for 1430 people while the same time providing enough water for irrigation of their crops.

One solar borehole pumping system provides over 30,000 litres per day to 75 families. There is currently enough ground water available in the project area. To ensure sustainable extraction of water project staff are still monitoring the levels of extraction while maintaining the same number of users and the same size of land under irrigation.

## **2. How does the practice meet the criterion of accessibility?**

### **Explanatory note: Accessibility**

Sanitation and water facilities must be physically accessible for everyone within, or in the immediate vicinity, of each household, health or educational institution, public institution and the workplace. The distance to the water source has been found to have a strong impact on the quantity of water collected. The amount of water collected will vary depending on the terrain, the capacity of the person collecting the water (children, older people, and persons with disabilities may take longer), and other factors. There must be a sufficient number of sanitation and water facilities with associated services to ensure that collection and waiting times are not unreasonably long. Physical accessibility to sanitation facilities must be reliable at day and night, ideally within the home, including for people with special needs. The location of public sanitation and water facilities must ensure minimal risks to the physical security of users.

### **Answer:**

Because the water facility is in the community it is accessible by all members. The land terrain in Nsanje where the project is being implemented is generally flat making accessibility possible by children, older, and disabled people. Before the new water facility was constructed, the closest drinking water source was over 1 km away and congestion at water points was a problem. Now it takes 2 -5 minutes to go collect water. It takes less than a minute to fill 20 litre containers. One system has 25 – 30 water points (taps) so that less than 70 people use one water point. The water sources are safe and fully used by the community as they are used for both drinking and irrigation.

## **3. How does the practice meet the criterion of affordability?**

### **Explanatory note: Affordability**

Access to sanitation and water facilities and services must be accessible at a price that is affordable for all people. Paying for services, including construction, cleaning, emptying and maintenance of facilities, as well as treatment and disposal of faecal matter, must not limit people's capacity to acquire other basic goods and services, including food, housing, health and education guaranteed by other human rights. Accordingly, affordability can be estimated by considering the financial means that have to be reserved for the fulfilment of other basic needs and purposes and the means that are available to pay for water and sanitation services.

Charges for services can vary according to type of connection and household income as long as they are affordable. Only for those who are genuinely unable to pay for sanitation and water through their own means, the State is obliged to ensure the provision of services free of charge (e.g. through social tariffs or cross-subsidies). When water disconnections due to inability to pay are carried out, it must be ensured that individuals still have at least access to minimum essential levels of water. Likewise, when water-borne sanitation is used, water disconnections must not result in denying access to sanitation.

### **Answer:**

The total cost of one system complete with tanks, solar pumping mechanisms and water points is £12,000 Stg. They are designed to ensure minimum maintenance costs, which are close to zero, are a pre-requisite for affordability as people do not need to contribute much in financial terms to keep the facility running. The local community benefits from it through agricultural production and has a fund for buying farm inputs for irrigation. Some of these funds are used to carry out small maintenance. Those using water for irrigation contribute more than those just using water for domestic purposes. The poor, elderly, orphans, people with disabilities and chronically ill are exempt from paying.

#### **4. How does the practice meet the criterion of quality/safety?**

**Explanatory note: Quality/Safety**

Sanitation facilities must be hygienically safe to use, which means that they must effectively prevent human, animal and insect contact with human excreta. They must also be technically safe and take into account the safety needs of peoples with disabilities, as well as of children. Sanitation facilities must further ensure access to safe water and soap for hand-washing. They must allow for anal and genital cleansing as well as menstrual hygiene, and provide mechanisms for the hygienic disposal of sanitary towels, tampons and other menstrual products. Regular maintenance and cleaning (such as emptying of pits or other places that collect human excreta) are essential for ensuring the sustainability of sanitation facilities and continued access. Manual emptying of pit latrines is considered to be unsafe and should be avoided.

Water must be of such a quality that it does not pose a threat to human health. Transmission of water-borne diseases via contaminated water must be avoided.

**Answer:**

As these are deep boreholes with depths of over 55m, water is assured to be safe. The water points use taps with water running straight from raised tanks making its safety very reliable. There are 25 – 30 water points for each system, reducing congestion, increasing access for all, providing more than 36 litres per person per day. The water is being tested periodically by experts from the Government Water Department. Water is extracted through taps which are easy to use and accessible to even children, elderly and people with disabilities.

#### **5. How does the practice meet the criterion of acceptability?**

**Explanatory note: Acceptability**

Water and sanitation facilities and services must be culturally and socially acceptable. Depending on the culture, acceptability can often require privacy, as well as separate facilities for women and men in public places, and for girls and boys in schools. Facilities will need to accommodate common hygiene practices in specific cultures, such as for anal and genital cleansing. And women's toilets need to accommodate menstruation needs.

In regard to water, apart from safety, water should also be of an acceptable colour, odour and taste. These features indirectly link to water safety as they encourage the consumption from safe sources instead of sources that might provide water that is of a more acceptable taste or colour, but of unsafe quality.

**Answer:**

There are few other sources of water in the area and providing water through boreholes has been accepted as normal unless the borehole is salty then acceptability may be low.

In the context of CARD's project, a borehole with salty water is definitely rejected upfront since the water is provided for the dual purpose of irrigation and domestic use. Systems are installed only on boreholes with appropriate water for both drinking and irrigation.

## **6. How does the practice ensure non-discrimination?**

### **Explanatory note: Non-discrimination**

Non-discrimination is central to human rights. Discrimination on prohibited grounds including race, colour, sex, age, language, religion, political or other opinion, national or social origin, property, birth, physical or mental disability, health status or any other civil, political, social or other status must be avoided, both in law and in practice.

In order to address existing discrimination, positive targeted measures may have to be adopted. In this regard, human rights require a focus on the most marginalized and vulnerable to exclusion and discrimination. Individuals and groups that have been identified as potentially vulnerable or marginalized include: women, children, inhabitants of (remote) rural and deprived urban areas as well as other people living in poverty, refugees and IDPs, minority groups, indigenous groups, nomadic and traveller communities, elderly people, persons living with disabilities, persons living with HIV/AIDS or affected by other health conditions, people living in water scarce-regions and sanitation workers amongst others.

### **Answer:**

A right based approach is employed in the CARD programmes and the inclusion of marginalised groups is emphasised. Mechanisms are put in place involving the communities to come up with written bye-laws on how they will enable the elderly, orphans, chronically ill and people with disabilities access to water without paying.

## **7. How does the practice ensure active, free and meaningful participation?**

### **Explanatory note: Participation**

Processes related to planning, design, construction, maintenance and monitoring of sanitation and water services should be participatory. This requires a genuine opportunity to freely express demands and concerns and influence decisions. Also, it is crucial to include representatives of all concerned individuals, groups and communities in participatory processes.

To allow for participation in that sense, transparency and access to information is essential. To reach people and actually provide accessible information, multiple channels of information have to be used. Moreover, capacity development and training may be required – because only when existing legislation and policies are understood, can they be utilised, challenged or transformed.

### **Answer:**

The community is engaged from the onset. During the planning, the baseline was carried out in the area where water was a priority. Options for water provision and possible uses were discussed to optimize the benefits. Community contribution, management and sustainability of the system/facility were agreed upon before actual implementation. Community members including vulnerable groups and leaders and government officials participated in the meetings. Issues relating directly to vulnerable groups were also discussed to ensure their distinct needs were addressed.

The community also provided all the needed unskilled labour during construction, for example, digging trenches for pipe laying, etc. Vulnerable groups, especially elderly people, children and orphans as well as people with disabilities were exempted from participating in construction unless they felt they could do something.

## **8. How does the practice ensure accountability?**

### **Explanatory note: Accountability**

The realization of human rights requires responsive and accountable institutions, a clear designation of responsibilities and coordination between different entities involved. As for the participation of rights-holders, capacity development and training is essential for institutions. Furthermore, while the State has the primary obligation to guarantee human rights, the numerous other actors in the water and sanitation sector also should have accountability mechanisms. In addition to participation and access to information mentioned above, communities should be able to participate in monitoring and evaluation as part of ensuring accountability.

In cases of violations – be it by States or non-State actors –, States have to provide accessible and effective judicial or other appropriate remedies at both national and international levels. Victims of violations should be entitled to adequate reparation, including restitution, compensation, satisfaction and/or guarantees of non-repetition.

Human rights also serve as a valuable advocacy tool in using more informal accountability mechanisms, be it lobbying, advocacy, public campaigns and political mobilization, also by using the press and other media.

### **Answer:**

A committee is elected publicly by the community members and these are entrusted to serve all people. Marginalized people are represented in the committee.

The Committee conducts meetings, where they inform the community. All community members and other stakeholders advise the committee on what needs to be done.

The project itself stands as proof of how communities can hold their own local government institutions accountable for improving water and sanitation services. CARD was approached by the government to provide water after receiving requests and pressure from the communities to have a working water system in the area. There is a cordial relationship amongst local institutions, government, decentralized structures, Non-Governmental Organisations and traditional structures.

## **9. What is the impact of the practice?**

### **Explanatory note: Impact**

Good practices – e.g. laws, policies, programmes, campaigns and/or subsidies - should demonstrate a positive and tangible impact. It is therefore relevant to examine the degree to which practices result in better enjoyment of human rights, empowerment of rights-holders and accountability of duty bearers. This criterion aims at capturing the impact of practices and the progress achieved in the fulfilment of human rights obligations related to sanitation and water.

### **Answer:**

1430 people have benefited from the project having access to drinking water and irrigation.

The impact includes:

- food security
- reduced water borne diseases
- increased sanitation and hygiene (e.g. house utensils and clothes are kept clean)

## **10. Is the practice sustainable?**

### **Explanatory note: Sustainability**

The human rights obligations related to water and sanitation have to be met in a sustainable manner. This means good practices have to be economically, environmentally and socially sustainable. The achieved impact must be continuous and long-lasting. For instance, accessibility has to be ensured on a continuous basis by adequate maintenance of facilities. Likewise, financing has to be sustainable. In particular, when third parties such as NGOs or development agencies provide funding for initial investments, ongoing financing needs for operation and maintenance have to be met for instance by communities or local governments. Furthermore, it is important to take into account the impact of interventions on the enjoyment of other human rights. Moreover, water quality and availability have to be ensured in a sustainable manner by avoiding water contamination and over-abstraction of water resources. Adaptability may be key to ensure that policies, legislation and implementation withstand the impacts of climate change and changing water availability.

### **Answer:**

The Committee is responsible for organizing repairs and keeping the maintenance fund to which the community contributes. So far, no maintenance has been required yet since the systems are less than 2 years old.

To ensure sustainable extraction of water continues to monitor the levels of extraction while maintaining the same number of users and the same size of land under irrigation.

## **Final remarks, challenges, lessons learnt**

The project was originally designed to improve food security through access to irrigation water. By choosing the project site in vicinity to the community it was possible to ensure that the community also can use the water to satisfy their needs for drinking water.

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