

# An evaluation of the sustainability of a rural water rehabilitation project in Zimbabwe

Zvikomborero Hoko<sup>a,\*</sup>, Jochen Hertle<sup>b,1</sup>

<sup>a</sup> Civil Engineering Department, University of Zimbabwe, Box MP167, Mount Pleasant, Harare, Zimbabwe

<sup>b</sup> German Agro Action (GAA), 1 Orange Grove Drive, Highlands, Harare, Zimbabwe

## Abstract

An estimated 70% of the national population lives in rural areas in Zimbabwe. Previous studies suggest that groundwater is consumed predominantly without treatment. This study evaluated the sustainability of a rural water point rehabilitation project that was carried out in Mwenezi (Masvingo Province), and Gwanda, Bulilima and Mangwe (Matabeleland South Province) districts by a local NGO. The study was carried out a year after the rehabilitation project. Sustainability indicators considered in the study included the reliability of the system, human capacity development, institutional arrangements, and the impact of the project on rural livelihoods. A combination of field inspections of the water points and interviews with villagers were used as study tools.

It was found out that 14% of the water points were broken down in Mwenezi, 17% (Gwanda), 13% (Bulilima) and 25% (Mangwe). Water quality was satisfactory for taste for over 90% and for 62–95% of respondents for soap consumption in all districts. Trained repair personnel were available in over 50% of the cases. Awareness of the training workshops for operation and maintenance in all districts was above 75%. Water point committees existed and functioned in all districts for 50–83% of water points. For 84–93% of the responses financial contributions were made only in the event of a breakdown. The walking distance to a water point was reduced after the project according to 83–100% of respondents in all districts. Health and hygiene knowledge was deemed to have improved due to the project in 46–78% of cases.

It was concluded that opportunities for sustainable water supply are there if active community involvement is enhanced, training is lengthened and water point committees strengthened. There is also need to raise the awareness of ordinary villagers. Future rehabilitation projects should consider stricter supervision and equipping the trained personnel with tools.

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## 1. Introduction

Over 5 million deaths per year are attributed to water borne diseases according to the World Health organization (De Regt, 2005). At the same time 75% of the world's poor live in rural areas (De Regt, 2005) and it is in these areas that most deaths occur due to limited access to safe water and sanitation. Improvements in water and sanitation do

not automatically result in improved health but addition of hygiene education is often required to see positive health impacts materialize (Billig et al., 1999). Therefore hygiene awareness and education are essential parts of water supply and sanitation projects (Duncker, 1999; De Regt, 2005).

Dublin Principle 2 states that water development and management should be based on a participatory approach involving users, planners and policy makers at all levels. Some experts proclaim that the International Drinking Water Supply and Sanitation Decade (IWSSD) did not achieve the intended goals because it was largely supply driven and not responding to demand, as well as lacking focus on sustainability. Therefore the demand responsive

\* Corresponding author. Tel./fax: +263 4 303288.

E-mail addresses: [hoko@eng.uz.ac.zw](mailto:hoko@eng.uz.ac.zw) (Z. Hoko), [j.hertle@gaazimbabwe.co.zw](mailto:j.hertle@gaazimbabwe.co.zw) (J. Hertle).

<sup>1</sup> Tel./fax: +263 4 497567.

approach, which seeks greater involvement of the beneficiaries, is a direct response both to Dublin Principle 2 and the shortfalls of the IWSSD.

Katz and Sara (1998) found that sustainability was higher when demand was expressed directly by household members and not through traditional leaders or community representatives such as water committees or local government. Therefore to achieve sustainability, water supply and sanitation development requires effective complementary inputs such as community participation, community capacity development and community training (Duncker, 1999). The sustainability of a service is defined as the capacity to maintain service and benefits, both at the community and agency levels without detrimental effects on the environment, even after special assistance has been phased out.

The majority of the Zimbabwean population lives in communal areas, where the most common source of water is groundwater (Robinson, 2002). Some 70% of Zimbabwe's population live in rural areas (Hoko, 2005). During the IWSSD, the Government of Zimbabwe embarked on a programme to improve water and sanitation in rural areas. The sustainability of the programme has been jeopardized in the last few years by economic decline both at household and national level (Robinson, 2002). Consequently there has been a drastic cut in the government's budgetary allocation for maintenance of rural water infrastructure. This has given rise to the promotion of community based management of rural water and sanitation infrastructure encouraging a demand driven approach. This approach has gained popularity with many NGOs assisting in the provision of water and sanitation. However, this community-based approach, as Robinson (2002) puts it, comes at a time when the resources of the community are more stretched than ever.

This study was carried out in the districts of Mwenezi (Masvingo Province, Zimbabwe) and Gwanda, Bulilima and Mangwe (Matabeleland South Province) in the period April to June 2005. It is a follow up to a rehabilitation programme carried out between July 2003 and May 2004 in the same districts. The rehabilitation project involved repair and rehabilitation of existing boreholes as well as drilling of new boreholes. Workshops aimed at improving the technical, managerial, health and hygiene knowledge of villagers formed part of the programme.

The study aimed at assessing the sustainability of the rural water point rehabilitation project. Major indicators of sustainability in this study included assessment of the reliability of the system, human capacity development, institutional arrangements, financing of operation and maintenance, and impact on rural livelihoods as suggested by Narayan (1993) and Katz and Sara (1998). These aspects were investigated mainly taking villagers as the source of information coupled with observations of the study team. The idea of focusing on villagers as the main source of information was to assess community involvement at the lowest level as a key aspect to sustainability.

## 2. Study area

All four districts are in some of the driest parts of Zimbabwe. Major socio economic activities in these districts include farming, cattle ranging, wildlife farming and mining. The districts are generally dry and most rivers are ephemeral. Water supply for domestic purposes is predominantly from groundwater sources. According to the farming regions classification of Zimbabwe, these areas fall into natural regions (or 'agro-ecological zones') IV (Mwenezi) and V (Gwanda, Bulilima and Mangwe). Natural Region IV is characterized by a rainfall of 450–600 mm year and is subject to frequent seasonal droughts (FAO, 2000). It is classified as 'semi-extensive' and is best suited to animal husbandry. Natural Region V has a rainfall of less than 500 mm rainfall per year and is very erratic and unreliable (FAO, 2000). According to Moyo et al. (1993, p. 306), 'without irrigation it is suitable only for extensive animal husbandry'. Therefore in general these areas are not suitable for rain-fed crop production but for irrigated farming, ranching and wildlife farming. In terms of hydrological zoning, Mwenezi is in zones B and E with mean annual runoff (MAR) of 19 mm and 70 mm, respectively. Gwanda is in zone B with MAR of 19 mm; Bulilima in A (MAR 17 mm); and Mangwe in B (MAR, 19 mm). The locations of the districts are shown in Fig. 1.

## 3. Methods

The methods in this study included physical inspection of the water points by the study team and questionnaires. Questionnaires administered to villagers focused on issues of reliability of water points, operation and maintenance, acceptability of the quality of the water, existence of water point committees, awareness of repair training workshops held, and awareness of health and hygiene education. The target group for interviewees was generally people aged 25 and above (with the absolute minimum being 20 years) as these were considered by the researchers to have adequate knowledge and awareness of issues being investigated. Whenever possible, household heads or parents were targeted. A total of 37 rehabilitated water points in Mwenezi, 41 in Gwanda, 38 in Bulilima and 28 in Mangwe were visited and interviews carried out randomly with villagers who abstract water from the water points.

The reliability of the system focused on: functioning and state of the water points, operation and maintenance, and perceived water quality. Institutional arrangements included existence and functioning of water point committees. Financial arrangements mainly focused on the method of raising funds for operation and maintenance as well as availability and need for additional resources. Human capacity development assessed the availability of trained personnel, awareness of the operation and maintenance training workshops and their perceived benefits. Participatory health and hygiene (PHHE) knowledge was studied by

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