



Figure 1: Trend in Irrigation Development 2004-2009

Recommendations

The following recommendations are made in order to address the critical issues affecting water resources in the country.

- Strengthening and harmonizing legal and institutional framework in water sector and other related sectors
- Improving enforcement of existing legislation on environmental management
- The Water Resources Board should be given more powers through legislation to penalize offenders regarding the discharge of effluent and other activities in or near water bodies
- Adequate resources should be provided for monitoring of water resources for both quantity and quality
- Community awareness in environmental issues, such as catchment protection, should be encouraged and more projects should be embarked on to rehabilitate and protect catchment areas.
- Carrying out Environmental Impact Assessments for development projects and environmental audits should be done for existing projects in order to come up with mitigation measures.

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Water Resources: Challenges in Malawi

Executive Summary

Malawi has significant volumes of water in its lakes and rivers. Water availability in rural areas is dependent on the presence of perennial rivers and streams, from which gravity-fed piped water supply systems draw water for supply to the rural population. However, Water resources in Malawi are generally declining both in quantity and quality due to climate change coupled with land degradation and water pollution. Realizing the dependency of the economy on water resources and its impact on poverty reduction, the Government of Malawi has reviewed and harmonized several policies such as Water Policy and Sanitation Policy. It has also restructured institutions responsible for water and sanitation. It has created Water Boards to facilitate the supply of water services in both rural and urban areas. But these water boards have had difficulty meeting the demands of the increasing population. It is recommended that adequate resources should be provided for monitoring of water resources for both quantity and quality and projects should be embarked on to rehabilitate and protect catchment areas.

Introduction

While Malawi has significant volumes of water in its lakes and rivers, it is considered water-stressed as its renewable water resources per capita are less than 1,400 m³ (GoM, 2008). With per capita water availability of only 961 m³ in 1990, expected to decrease to 403 m³ in 2025 (Hollingworth, et. al., 2005), Malawi is worse off in terms of water availability than many other countries in the SADC region. With climate change coupled with land degradation and water pollution, the situation of water availability in the country would become more serious than anticipated unless pragmatic measures are put in place and strong enforcement mechanisms are implemented in water resources development and management. Water availability in rural areas is dependent on the presence of perennial rivers and streams, from which gravity-fed piped water supply systems draw water for supply to the rural population. In the urban areas, water availability could become worse

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with some of the sources of water supply either being polluted such as Mudi Reservoir in Blantyre, subjected to competing uses, unable to satisfy demand, or highly salinated from groundwater sources. Should the current influx of migration of people from the rural to urban areas not be curtailed, water availability in urban areas will be under intense pressure.

Water resources in Malawi

Water is an essential natural resource that shapes landscapes and is vital for ecosystem functioning and human well-being. Malawi is generally rich in water resources which are stocked in its lakes, rivers and aquifers. Lake Malawi stores the bulk of Malawi's renewable surface water. The Shire River is the largest river and the only outlet of Lake Malawi. There are also other lakes and three large marshes of socio-economic significance. All water resources in Malawi are replenished by rainfall and groundwater recharge. Annual rainfall distribution is critical in ensuring water resources availability over time, (GoM, 2008).

Access to safe water

Provision of quality water, access to safe water, sanitation and management of waste, have remained perpetual challenges in human settlements, despite government's efforts to alleviate these problems (GOM, 2006). Only 25% of the population use piped water inside a dwelling unit. However, 2008 Malawi's census indicates that about 48% of the population prior to the census used boreholes as a main source of drinking water in the dry season, 18.3%

used unprotected wells and 11.9% used community stand pipes (NSO, 2009).

Seasonal variations also determine how households access water. More households proportionately draw water from unprotected sources during the wet season. Proximity to areas that become swamps during the rainy season is a factor; use of such swamps reduces time needed to fetch water (NSO, 2009). Nonetheless, the proportion of households with safe drinking water increased between 2005 and 2007 to 81%, and is projected to reach 91% by 2015, far exceeding the MGD target of 74%. Access to water resources has significantly improved to about 75% in 2006 (NSO, 2009) but tremendous challenges in accessing safe water abound due to pollution (Kwanjana, 2009). The high rate of urbanization and rapid population growth in urban settlements have forced residents to source water from long distances and unprotected areas.

Challenges in water resources management

The Government of Malawi created Water Boards to facilitate the supply of water services in both rural and urban areas. But these water boards have had difficulty meeting the demands of the increasing population; as a result, many have suffered from financial hardship. Water boards do not generate adequate funding to fund new connections and extension to unplanned settlements. In addition, Water Boards incur losses as a result of illegal connections, unreported leakages, and default in payment of bills by water user association kiosks and individuals (ALMA, 2006).

Water quality

The typical water quality problems in the country are: unpleasant smell due to high concentrations of sulphur in the bedrock and high salinity caused by evaporative concentrations in shallow water tables. High levels of iron are widespread throughout the country, especially in the basement aquifer. High iron content in groundwater has been blamed for corrosion of borehole linings and hand pump components. Manganese concentrations of above 1mg/l are common in the South Rukuru Basin and present similar problems as those caused by iron, (Kwanjana, 2009).

Pollution of water from faecal matter is high in several areas, indicating that water facilities should be strategically located away from populated areas to minimize levels of pathogens. Nitrate concentrations are highest in areas of high agricultural activity due to use of inorganic fertilizers. Many river basins in the country are under severe pressures due to deforestation, unsustainable agriculture, settlements, mining, industry, commerce, tourism and climate change. These activities have influenced changes in water quality especially due to sediment loads, industrial wastes, chemicals from agricultural lands, and the proliferation of aquatic vegetation, (Kwanjana, 2009)

While commendable progress has been made in the development of the legal instruments the sector continues to face a number of challenges and threats that the country needs to address as a matter of urgency in order to conserve the resources from further depletion and degradation due to the following factors;

- Poor management of catchment areas,
- Environmentally unfriendly agricultural practices,
- Rapid population growth,
- Inappropriate discharge of industrial wastes and
- Weak institutional structures for enforcing the Act.
- Increased irrigation schemes (see: figure 1)
- Potential impacts of climate change,
- Infestation of water bodies by invasive plants.

Options for action

Malawi has formulated a number of strategies that will address settlement issues, such as the Malawi Poverty Reduction Strategy and Malawi Growth and Development Strategy.

The latter includes a goal to increase access to good drinking water and sanitation through the construction and rehabilitation of water facilities and reduction of the incidence of waterborne diseases.

The government has also reviewed several policies such as Water Policy and Sanitation Policy, Waste Management by-laws, and Public Health Act in order to harmonize activities and programmes.

It has also restructured institutional responsibility for water and sanitation; for example, the Ministry of Water Development and Irrigation is now responsible for both water and sanitation. However, lack of coordination among responsible institutions and financial resources remain a challenge.