Adaptation planning and implementation for water resources

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During June to December, only major rivers maintain flows.
2000 cubic m / person/annum is ideal for sustainable human development. On average, Malawi fetches only up to 1640 cubic metres per person per annum from its sources of water.

Effects of Droughts and Floods

a) Droughts and floods result in loss of life, damage to economy, infrastructure (buildings, roads, bridges, settlements, irrigation schemes) eg. In 1989, more than 400 people died in Lower Shire and over 1000 in Phalombe flush floods in 1991;
b) Droughts cause perennial rivers to dry eg. as experienced in the Blantyre and Lilongwe Water Boards from 1992 to 1997 and even currently;
c) Floods disrupt electricity production due to siltation and water weeds that choke and block the in-take points. These result in electricity load shedding;
d) Floods have made the Mankhanga-Bangula road and rail unserviceable since 1989 due to damages.

Sectors impacted in Malawi: Agriculture and Livestock; Energy; Fisheries; Gender; Human health; Land Use, Land Use Change and Forestry; Water; Wildlife.

Flood Prone Areas in Malawi

- Lower Shire Valley along the Shire and Ruo rivers in Nsanje District is the most frequently and severely flooded (once in every two years). Worst flood was the 1989 event.
- North Karonga lakeshore mainly along Songwe and Rukuru rivers
- Chikwawa along Mwanza river
- Zomba along Likangala and Domasi rivers around Lake Chirwa
- Salima District
- Mud flooding associated with prolonged torrential rains also occurs such as the one in 1991, which killed over 1000 inhabitants.

Drought Prone Areas in Malawi

- Whole country can be declared a drought prone area if we consider hydrological droughts (looking at rainfall occurrence and distribution pattern)
- Lower Shire Valley again tops high with the Shire and Ruo rivers being intermittent
- South-central Karonga
- Southern lakeshore or Bwanje valley

- Upper Shire valley (Balaka, Mwanza, Mangochi, Ntcheu, southern Salima)

Previous Efforts on Adaptation

i. Small scale irrigation dams across some of the major rivers in Malawi
ii. Mulunguzi dam in Zomba
iii. Rice schemes in the lower Shire valley and Karonga lakeshore
iv. Mini hydro power plants such as the Wovwe scheme
v. Use of boreholes and gravity fed water supply schemes such as the Mpira-Balaka dam
vi. Provision of dykes and levees to prevent floods from destroying crops and irrigation infrastructure
vii. Practising of dimba irrigation from streams and rivers
viii. Rain water harvesting technologies

Barriers

Inability to predict and to be prepared for such events due to lack of resources, opportunities (for dam sites and rivers that can have EWS) and capacity

Inadequate early warning systems

Opportunities Available

Dams have been built in the country
Meteorological Services Department is already issuing weather warnings

Proposed Adaptation Measures

Adaptation to climate change in the water sector would require measures that would provide mitigation and relief to such incidences of floods and droughts. These should include improved water supply particularly to rural communities through reservoir storage, gravity fed water supply schemes and innovative borehole construction to provide security of water supply during drought years.

Risks

Lack of resources during implementation
Poor land uses and management that can result in siltation of reservoirs.

Malawi's NAPA Priority Project Profile: Improving community resilience to climate change through the development of sustainable rural livelihoods

The integrated sustainable livelihood project would enhance people's capacity to cope with and adapt to these natural calamities in vulnerable areas. The major sustainable livelihood interventions include the promotion of the following: (i) water management, purification and utilization, (ii) crop and livestock production, (iii) growing a diversity of crop varieties and fruit trees and rearing of animal breeds that are drought tolerant; (iv) domestication of indigenous fruit trees, and small animals, such as rabbits and guinea fowls; (v) using agroforestry practices; (vi) fish farming and processing; (vi) agro-processing; (vii) market access; and (viii) cross cutting issues: HIV/AIDS, gender and the environment.

Objective. The main objective of this project is to develop and promote user-friendly sustainable livelihood strategies to target communities in areas that are vulnerable to climate change, such as the Shire Valley in southern Malawi.

Short-term outputs. Sustainable livelihood strategies developed, communities' capacity enhanced, interventions adopted and utilized by rural communities that will enable them adapt and cope with climate-related natural calamities and disasters.

Potential long-term outcomes. Improved quality of life of the peoples, reduced economic losses, and improved access to food and water, increased number of alternative livelihoods (in addition to farming) and enhanced protection of natural resources and the environment.

Risks and barriers. The major risks and barriers include:

- Viability of the developed sustainable livelihood strategies,
- Willingness of local community based organizations (CBOs), NGOs and other institutions to support the initiatives,
- Willingness of the communities to adopt the developed technologies, and
- Local beliefs in implementing the developed technologies.

Financial resources. The total cost for developing and implementing the sustainable livelihoods strategies for vulnerable communities in the Shire Valley is estimated at US$ 4.5 million for a period of three years.