



National Consultations on Water, Food Security and Nutrition

Final report of National Consultation on  
Water, Food Security and Nutrition

**MALAWI**

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## ABOUT THE OVERALL INITIATIVE

**2015 is a milestone with the new UN Sustainable Development Goals and the COP 21 on Climate Change in Paris. Building on the recent report on Water produced by the High Level Panel of Experts on Food Security and Nutrition, Global Water Partnership Africa (GWP) partners are joining forces to contribute to sustainable development in the face of climate change. This initiative, planned for five years, will, in an inclusive manner, identify challenges and implement relevant concrete activities at all levels.**



Country Water Partnerships (CWPs) in Benin, Burkina Faso, Cameroon, Ethiopia, Mali, Nigeria, Sudan, Uganda, and Zimbabwe and now Lesotho and Malawi decided to seize the opportunity created by the Committee on World Food Security (CFS) to engage further with Food Security and Nutrition (FSN) to make a tangible contribution at country level.

As a first step, these CWPs took the May 2015 HLPE report, explained it to country water and FSN stakeholders and facilitated a national dialog on HLPE recommendations against country priorities. The second step was to convene national workshops with interested stakeholders for more than 200 concerned ministers, farmers organizations, CSOs, and development partners on urgent needs and priority actions to be taken to impact the functioning of the Water Energy Food Ecosystems nexus for better livelihoods.

### **Next steps: elaboration and implementation of the program**

With its “SDGs preparedness facility”, its Water and Climate Development Program, and with partners, GWP will coordinate the elaboration in 2016 and then the implementation of a 3 years program addressing technical and institutional country-identified priorities in the context of CFS resolutions and the COP 21 agenda for solutions.

## 1. BACKGROUND

Water, energy, food, and ecosystems are essential for meeting basic needs for mankind. But each one of these is coming under severe pressure exacerbated by climate change.

In Africa, people will be most at risk if this challenge is not dealt with effectively. And it is in light of the above that Global Water Partnership (GWP) and African governments are joining forces to address water, energy, food, and ecosystems nexus challenges – vital sectors to human development.

It is the intention of GWP and its partners to work in close collaboration to promote effective policies and actions at local, country, and regional levels, especially as they relate to food security in sub-Saharan Africa.

The programme builds on the New Partnership for Africa (NEPAD) and its implementation at country level and on the work of the UN Committee on World Food Security (CFS) and other agencies. During its meeting in 2015, the CFS among other things encouraged States and other relevant stakeholders to join forces, within their respective mandates, competencies and responsibilities, to address challenges related to water's contribution to Food Security and Nutrition (FSN) through both an ecosystem's and a people-centred approach. Specifically, the Committee made the following recommendations:

- 1) Promote sustainable management and conservation of ecosystems for the continued availability, quality and reliability of water for Food Security and Nutrition;
- 2) Improve coherence between water and FSN related policies, strategies and plans;
- 3) Achieve equal access to water for all, prioritize the most vulnerable and the marginalized at all ages and empower women and the youth;
- 4) Improve the efficiency and diversity of water use and the productivity of agricultural systems for FSN;
- 5) Manage risk and increase resilience to water variability for FSN;
- 6) Develop and share knowledge, technologies and tools related to water for FSN;
- 7) Foster inclusive and effective collaboration and national and local governance on water for FSN; and
- 8) Promote the full and meaningful implementation of international human rights obligations and instruments as they relate to water for FSN.

In response to these recommendations, Global Water Partnership (GWP) conducted a series of country consultations in Africa on challenges for water and food security. These consultations initiated a strong multi-stakeholder approach between government, commercial, and other players. At a practical level, they identified specific country priorities in line with recommendations made by CFS. The situation analysis report was presented at a country stakeholder consultative meeting held on 20<sup>th</sup> April, 2016 in Lilongwe. During the meeting, stakeholders provided further input into the draft country situation analysis report and prioritized issues for the country.

## 2. INTRODUCTION

Agriculture is the backbone of Malawi's economy, contributing 27.6% to GDP, 90% of total foreign exchange earnings, and 80% of the labor force (Government of Malawi, 2011). About 85% of Malawi's human population lives in rural areas where agriculture is the main source of livelihood.

Agriculture's contribution to foreign exchange and GDP has been driven primarily by tobacco, the country's main cash crop and foreign exchange earner. Tea and sugar are the other important export crops. Domestically, maize is the predominant food crop, grown by nearly all smallholders throughout the country, and contributes to more than half of the national calorie uptake. Given the importance of the crop in the Malawian diet, maize production is vital to the general welfare of the population, and is therefore an important social and political variable.

Malawi's agriculture is dependent on seasonal rainfall, which usually falls between the months of November and April. For the past decade or so, the country has been experiencing unpredictable weather patterns characterized by poor distribution of rainfall, causing dry spells, droughts and floods. These have made agricultural production and the country's agrobased economy extremely vulnerable.

Malawi is generally rich in both surface and ground water resources. Surface water resources comprise a network of rivers comprising North and South Rukuru and Songwe in the Northern Region, Linthipe, Bua, Dwangwa in the Central Region, and Shire and Ruo in the Southern Region. Groundwater resources are mainly found in two key aquifer systems: the extensive but low yielding Pre-Cambrian Basement Complex aquifer, and the high yielding alluvial aquifer along the shores of Lake Malawi and Lake Chilwa, and in the Upper and Lower Shire Valley. But despite the availability of abundant water resources in the country, only 2.3% of total arable land is irrigated, and the largest proportion (52%) is estate or plantation farms, mostly growing sugarcane and tea. Smallholder irrigation, which comprises 48% of irrigated land, remains virtually under-developed.

Shire River is the outlet of Lake Malawi and accounts for about 98% of the country's hydro-power generating capacity, which makes the country's industrial development almost entirely dependent on the Shire River for its energy. In this regard, reduced flows into Lake Malawi by the tributary rivers have a direct effect on flows in the Shire River, and a consequent bearing on reduced energy generation capacity. In recent years, intermittent hydropower generation has been attributed mainly to droughts and floods episodes. Water flow disruptions in the Shire and its tributaries have been exacerbated by siltation caused by poor and unsustainable land husbandry practices and deforestation taking place in the catchment area, and the infestation of waterweeds, such as water hyacinth.

Fish is the main source of animal protein in Malawi. About 70% of total human population derive their animal protein uptake from fish, most of which are harvested from Lake Malawi. A large percentage of the population of people living along the shores of Lake Malawi, Lake Chilwa and Lake Malombe depend on fish resources for the sustenance of their livelihoods. For the past decade or so, droughts and floods have been the major climatic hazards affecting fisheries

production, and have contributed immensely towards the declining or even drying up of water bodies, resulting in low fish catches and loss of biodiversity. Floods have been responsible for the destruction of fish ponds, whilst droughts have led to low water levels in the main water bodies and reservoirs, or even the drying up of rivers and lakes. For example, the drying up of Lake Chilwa in 1995 resulted in total loss of fish stocks.

The totality of the calamities highlighted above has led to extreme food shortages in Malawi, and it is against this background that the Government is committed to redress the resultant effects for the country to meet both its food security and nutrition and well as water needs for its rapidly growing population. At its April 20<sup>th</sup> 2016 stakeholder meeting held in Lilongwe, it was agreed that the Water, Food Security and Nutrition nexus approach was the best way forward for the country.

### 3. NEXUS APPROACH CONCEPTUAL FRAMEWORK

The diagram below describes the centrality and complexity of water resources in terms of availability, access and management for food security and nutrition, human consumption, and energy.

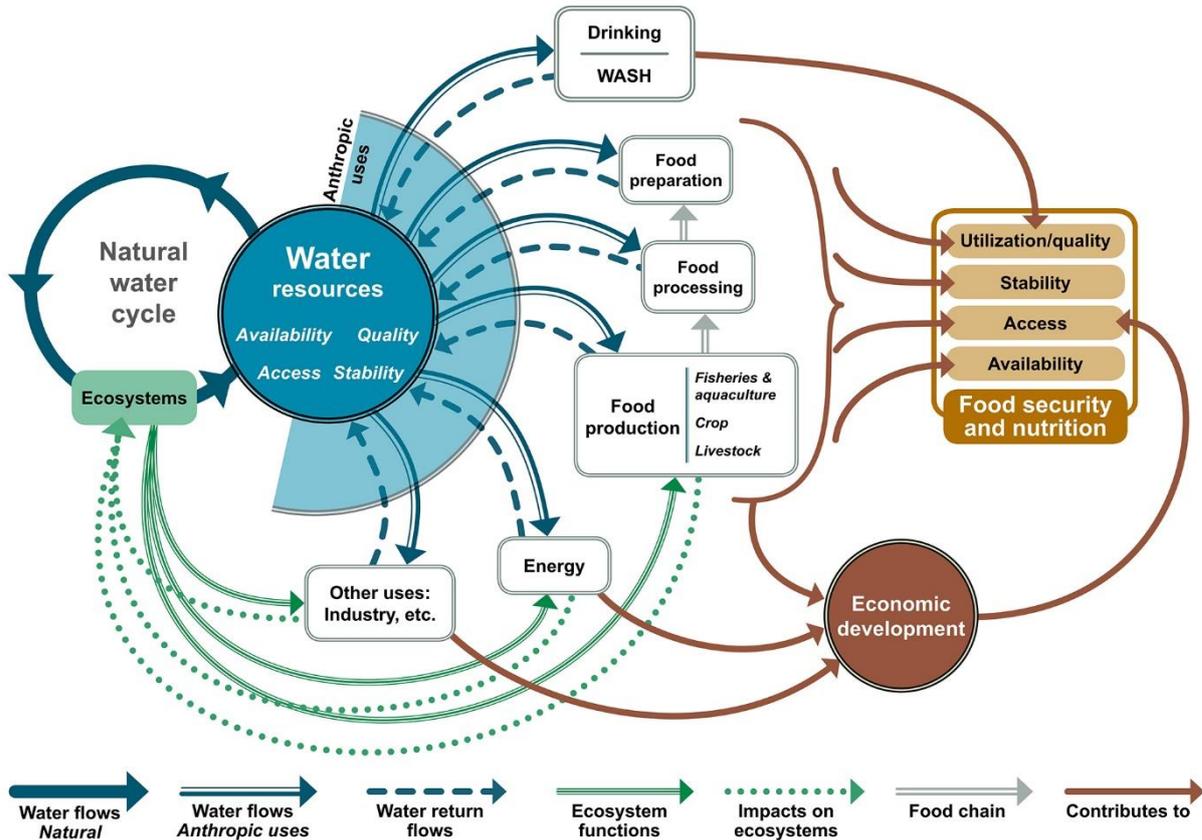


FIGURE 1: MULTIPLE LINKAGES BETWEEN WATER AND FOOD SECURITY AND NUTRITION

In Malawi, the quantity of surface water resources, especially in rivers and lakes, is highly dependent on the availability of rainfall which sustains runoff. Surface water resources are more abundant during the rainy season than during the dry season. Lake Malawi, with a surface area of about 28760 km<sup>2</sup>, has a great influence on the water balance of the country. The mean annual rainfall over the lake is estimated to be 1549 mm. But although Malawi has abundant water resources, its spatial availability has been an issue on concern for food production, especially in the drier areas where most of agricultural production takes place.

Water has competing demands. Critical in Malawi is water demand for human consumption, food production, rain-fed and irrigated agriculture, hydro-power generation, fisheries production, navigation, and tourism. The recent cases of low rainfall and resultant food insecurity as well as low hydropower power generation due to prevalent low flows in the Shire have increased competition for water use especially for irrigation development versus hydro-power development. For example, the Department of Irrigation (DI) is proposing to

develop about 1,000 hectare irrigation scheme in the catchment of South Rukuru River, while the Department of Energy is planning to develop a hydro-power station just downstream of the proposed irrigation scheme. Similarly, the DI is proposing the development of an irrigation scheme in the Lower Shire Valley involving thousands of hectares, versus the commissioning of a new hydro-power station just below the intake for the irrigation scheme at Kapichira. The country's dilemma is that it needs both energy and irrigation to boost and sustain the country's ailing economy, but one has to take precedence over the other. And in the case of the Lower Shire Valley, Government has decided to proceed with the irrigation scheme and put on hold the development of the new hydro-power station at Kapichira. In the case of South Rukuru, the matter is still being discussed. These two examples help to highlight the complexity of water resources issues in Malawi.

Water is a gender issue. The majority of Malawi's rural population is dependent on groundwater as a source of potable water supply, mainly accessed through boreholes. Very few rural communities access water through gravity-fed rural piped water systems. Communities not serviced by boreholes or gravity-fed systems collect water from rivers or unprotected wells, whose water is usually heavily polluted and hence not safe for human consumption. In either case, women and girls are almost exclusively the providers of water for household and other uses. During periods of water scarcity, they walk long distances or wake up at dawn to fetch water, and therefore suffer the most. Yet notwithstanding their being the providers of water for households, women and girls in Malawi have little or no influence over water resources management in the country, e.g., where water facilities or water points should be located, but rather it is men who usually make such decisions.

Water governance is important for water resources development and management. In towns and cities, water is mainly provided by the five parastatal Water Boards of Northern Region, Central Region, and Southern Region covering towns and smaller cities in the three regions, and Lilongwe Water Board and Blantyre Water Board supplying water to the cities of Lilongwe and Blantyre respectively. While borehole drilling is restricted in the main cities, its regulation in towns and rural areas is not properly regulated. Water abstraction in general has over the years not been properly regulated. As a way forward, the new Water Act has made provision for the creation of a National Water Resources Authority (NWRA) whose mandate, among others, is to regulate the use of water as a resource to ensure that water is being used efficiently and prudently by all water users in the country. In addition, the NWRA will be responsible for the issuance of water abstraction rights to users.

Water quality is crucial for both drinking as well as food preparation and processing. Water-related diseases lead to ill-health and poor nutrition outcomes. Poor water quality also affects ecosystems' functioning. In Malawi, poor agricultural practices have been blamed for pollution of water bodies, especially excessive soil erosion leading to siltation of rivers and reservoirs, and agro-chemicals being washed down from catchments into rivers and lakes, causing negative effects (e.g., eutrophication) on aquatic life and other marine ecosystems.

## 4. KEY CHALLENGES FOR MALAWI

### a. POOR CATCHMENT CONSERVATION

At the moment, sedimentation is a serious problem that rivers and lakes in Malawi are experiencing. With increased catchment degradation, large volumes of sediments washed down from catchments get deposited in rivers and lakes, thereby clogging water treatment works for domestic water supply, irrigation canals, and hydropower generation infrastructure. Malawi has more than 56 gravity fed water supply schemes and more than 750 small earth dams, four large dams, namely: Lunyangwa Dam in Mzuzu, Kamuzu Dams I and II in Lilongwe, and Mulunguzi Dam in Zomba. But due to excessive siltation, some of these gravity fed schemes and small earth dams have stopped functioning. Of late, water supply to Lilongwe City has tremendously declined due to the siltation of Kamuzu Dams I and II caused by destruction of Dzalanyama Forest Reserve, the main source of the rivers that feed into the two dams. The challenge of poor catchment conservation has widely been acknowledged as causing food insecurity and water resource degradation and depletion. Recently, this has also been manifested through frequent floods. For example, in 2015 severe floods occurred in 15 out of 28 districts of the country. Apart from affecting water supply systems, the floods had a major effect on the food security situation in the country.

### b. FOOD INSECURITY

Malawi has been experiencing weather associated food insecurity in a number of years since the year 2007. In the past five years, the country has had three years where significant numbers of people have relied on humanitarian food aid for the sustenance of their livelihoods. For instance, in 2012/13 about 1,630,000 people relied on food relief while in 2013/14 about 1,154,000 people relied on food hand-outs. In 2015/16 the figure rose to about 2.86 million people. In general, the country's agricultural production for the 2015/16 season has been projected to be the lowest for the past 5 years due to weather related factors. According to the Second Round Agricultural Production Estimates Survey (APES) released by the Ministry of Agriculture, Irrigation and Water Development in March, the country's main staple food, maize has registered a decline of 12.4 percent as compared to the 2014/15 final round estimate. Thus, maize production declined from 2,776,277 metric tons in 2014/2015 to about 2,431,313 metric tons in 2015/16. The average maize production prior to the year 2014/15 has been 3.5million metric tons. The estimates have also registered decreases in almost all other food and cash crops. What this means is that the affected communities will face serious challenges to access food using alternative means, and according to a rapid survey jointly conducted by the Ministry of Agriculture, Irrigation and Water Development and the UN Food and Agriculture Organization (FAO), the estimated number of people that are likely to face food shortage in 2016/17 is 8.4 million.

### c. POOR IRRIGATION DEVELOPMENT

Notwithstanding the drought related decline in crop production, irrigation in Malawi is under-developed. According to the Irrigation Master Plan and Investment Framework (2015), Malawi has an irrigation potential of about 408,000 hectares. At present, however, only 104,463 hectares have been developed, representing 26% of potential irrigable land. Out of this, about 52,144 ha (49.8%) are under smallholder farmers while 52, 499 (50.2%) ha

are under commercial estates. The area under irrigation is low partly due to low levels of financing, high cost of irrigation investment, low levels of economic rate of return and unfavorable financing mechanisms prevailing in the country. On average, it costs about US\$10,000 to develop one ha for irrigation. It also takes about 3 to 5 years for an investor to start realizing profits (economic rate of return) from irrigation investment. Other factors attributable to the low investments in irrigation in the country include dwindling sources of water due to catchment degradation; high costs of electricity and fuel to pump water; and, low adoption of good agriculture technologies and practices. For commercial farmers, the unaffordable cost of capital and access to land has hindered development of irrigated agriculture.

## 5. RESPONSIVE MEASURES

Given the recurrence of low food production, exacerbated by the occurrences El Nino and other weather related catastrophes, over reliance on rain-fed agricultural production with little diversification poses a high risk for Malawi in terms of food and nutrition security. This, therefore, calls for appropriate measures to be put in place to ensure food availability at household and national level, by utilizing the available water resources to increase food production and exploring innovative ways of financing irrigation investments. However, this will be done with the understanding that:

- 1) The country's food crop productivity has stagnated over time while population continues to grow at a fast rate. This poses a challenge for Malawi to meet its domestic demand for food and hence the need to come up with programmes that would enhance food production and productivity;
- 2) The country's resilience to weather related calamities in the wake of climate change need to be enhanced; as such, diversification alongside the predominant crops and beyond crop based agriculture could be a solution to reduce food and income insecurity;
- 3) The region's grain production is declining with the main producers such as South Africa, Zimbabwe facing production challenges to meet their domestic demand. That being the case, Malawi faces a logistical challenge to import maize grain in the years of production deficit as it has, in most cases, relied on South Africa;
- 4) Malawi has relatively better natural resources as compared to other neighboring countries in the region. Harnessing such resources with proper investment can make Malawi a food basket for the region while at the same time boost its own food production and expanding its export base in response to the National Export Strategy (NES) requirement; and
- 5) Considering the cost of capital financing in Malawi and the economic rate of return for an irrigation investment, Malawi would only enhance such investment by coming up with an innovative way of financing rather than relying on the prevailing financing mechanisms with the commercial banks which are unaffordable and unfriendly to irrigation investment hence the proposed measure to consider innovative financing mechanism.

### a. POLICY FRAMEWORK

The Malawi Growth and Development Strategy (MGDS II) is the government's overarching medium term strategy (2011–2016) to attain the nation's Vision 2020. The main objective of the MGDS II is to continue reducing poverty through sustainable economic growth and infrastructure development. The proposed measures would, to some extent, assist in attaining the MGDS objective.

At sector level, the Agriculture Sector Wide Approach (ASWAp), is a priority sector investment programme that operates within the MGDS II to attain sustainable food security, water development and disaster risk management. All proposed measures therefore need to be in line with the sector's investment plan.

The National Export Strategy (NES) calls for diversification to enhance the country's export base in this respect the measures outlined herein envisage to partly implement the NES.

b. PROPOSED MEASURES

The following measures which are categorized into short, medium and long term, have been proposed for the country to address issues of water, food security, and nutrition holistically and in an integrated manner:

**Short term measures (2016-2017)**

- 1) Engage commercial and other emerging farmers to either utilize their irrigation facilities or use the ones belonging to the smallholder farmers (i.e. unutilized irrigable land) for maize production. Government envisages that through this strategy, an estimated 4,500 hectares, out of available irrigable land under private sector could be deployed for maize production. This could result in the realization of a further 25, 000 tons of maize. The cost is estimated at about MK6.8 billion (US\$10,000,000);
- 2) Mobilize smallholder farmers to engage in irrigation farming to supplement the current rain fed crop. It is estimated that a total of 35,000 hectares would be planted to the second crop under the management of smallholder farmers benefiting about 285,000 farming households, and this expected to produce about 140,000 metric tons of maize. This maize will assist in closing the food gap but will be for smallholder farmers' own consumption and not for sale to Government. However, considering the economic situation farmers may face this year it is advisable to support them with farm inputs such as fertilizer and seed. The initiative will cost about MK8.4 billion (US\$12,000,000);
- 3) Distribution and installation of the already-available motorized pumps to increase the area under irrigation. Government will distribute and install 9 (55 horse power) pumps. The initiative will increase area under irrigation by 210 ha producing about 840 mt. The cost for distribution, installation, fuel and infrastructure development is estimated at K700 million (US\$1,000,000);
- 4) Import about 1,000,000 metric tons of white maize to offset the maize production shortfall from overseas as the African Region has a huge grain deficit this year. The importation cost is estimated at US\$347 million (MK242.8 billion); and
- 5) Local maize procurement through ADMARC and the National Food Reserve Agency (NFRA). With this measure, each of the two institutions will be expected to stock about 250,000mt.

**Medium Term Measures (2016-2020)**

- 1) Procure, distribute and install solar pumps across the country targeting areas with high potential groundwater yield of between 5-15 Litres/second (i.e. these areas cover the Lake Malawi littoral such as Karonga, Salima, Dedza, Mangochi and the Shire Valley districts of Chikwawa and Nsanje). It is proposed that sites with potential of 10 ha of land or more would be targeted. The plan is to procure and install a total of 27 solar pumps with potential to irrigate about 270 ha of land (10 ha for each solar pump) to benefit about 1,350 farming families. This land could be made available for irrigated agriculture in the 2016/17 financial year. It is estimated that about MK1.4 billion (US\$2,000,000) would be required for procurement, distribution, installation of solar pumps and construction of ancillary structures. In addition, the resources would also be used for community sensitization, preparation of designs and construction of associated civil works for irrigation development;
- 2) Distribute 4,460 treadle pumps in the fifteen districts that were affected by the flood disaster of 2015. Funds for this activity are already available under the World Bank funded Malawi Flood Emergency Drought Recovery Project; and
- 3) The 12 schemes that are under construction country wide will be completed in the due course covering about 1,581ha.

#### **Long-Term Measures (Beyond 2020)**

- 1) Diversify agricultural production for food and nutrition security as well as in support of the National Export Strategy (NES). In this respect, investments in the sector will focus on production and marketing of crops identified in the NES while also looking at the other sub-sectors such as livestock and fisheries;
- 2) Promote investments in regional strategic grain reserves and storage systems;
- 3) Promote programmes that focus on increasing adoption of drought and flood tolerant crop varieties;
- 4) Invest in mechanization focusing on appropriate machineries;
- 5) Promote technologies that reduce post-harvest losses in storage, preservation and food processing;
- 6) Strengthen food markets and value chains to deliver sufficient, high quality, nutritious, safe and culturally acceptable indigenous foods;
- 7) Promoting climate smart agriculture;
- 8) Promoting soil and water conservation technologies;
- 9) Promoting intensive livestock breeding programs; and
- 10) Supporting the development of crop varieties that are adaptive to the ever changing climate.

Some of these long term interventions will be implemented in line with the Country's National Food and Agriculture Investment Framework also known as the Agriculture Sector Wide Approach (ASWAp).

#### **On-going Irrigation and Food Security Programmes**

There are a number of programs that the Government is implementing in order to avert food insecurity in the country and to build resilience against climate change vulnerabilities. These are either funded from the National budget while others are co-financed with development partners. Some of these initiatives include: the Green Belt Initiative, Climate Change Adaption and Agriculture Project funded by the African Development Bank, Drought Recovery Project funded by World Bank, Shire River Basin Management Programme, and Shire Valley Irrigation Project (SVIP).

## 6. THE WAY FORWARD

In contributing to government's short, medium and long term perspective, the Malawi Water Partnership through the Ministry of Agriculture, Irrigation and Water Development and key partners who participated in the consultative forum of 20<sup>th</sup> April 2016 in Lilongwe proposed to undertake a pilot integrated program targeting the Shire River Basin (one of the basins in Malawi prone to droughts and floods) in order to draw lessons on issues of water, food security and nutrition and to upscale to the same other parts of the country. Some of the proposed intervention activities would include, but not limited to:

- 1) Carry out water resources assessment in the identified catchment to establish water resources availability and quality, multi-sectoral water demand for present and future developments;
- 2) Identify existing and potential small, medium and large dam and reservoir sites for multipurpose water resources development;
- 3) Promote smallholder irrigation systems that use renewable energy (solar, wind);
- 4) Carry out surveys on demand-driven development project needs that would transform the socio-economic status of people in the priority areas;
- 5) Promote production and adoption of drought and flood tolerant crop varieties;
- 6) Strengthen food markets and value chains to deliver sufficient, high quality, nutritious, safe and culturally acceptable indigenous foods;
- 7) Promote climate smart agriculture;
- 8) Promoting soil and water conservation technologies including rainwater harvesting structures;
- 9) Facilitate implementation of flood mitigation measures such as dykes, early warning systems in the target areas;
- 10) Promote production of small livestock to enhance household nutrition and incomes; and
- 11) Build capacity of relevant sectors in agriculture, water, environment to respond to the needs to rural farmers.

Since the Shire River Basin Management Programme is already addressing some of the issues highlighted above, the Malawi Water Partnership and its partners will be complementing efforts being made by the Government of Malawi in the implementation of Integrated Water Resources Management (IWRM) in the Shire River Basin.