



High-Level Conference on:

Water for Agriculture and Energy in Africa: the Challenges of Climate Change

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National Investment Brief

MALAWI

[DRAFT FOR REVIEW BY GOVERNMENT]

EXECUTIVE SUMMARY:

Malawi has a very high level of undernourishment, being 35 percent of the population undernourished. Both the proportion and the number of undernourished people, though, have decreased from 3.7 million in 1990-92, benchmark period of the World Food Summit (WFS)¹ and Millennium Declaration (MD), to 3.7 million for 1999 - 2001, the latest period available, and food supply has steadily improved during the nineties.

The country's GDP was 3 552 million US\$ in 2007. Agriculture is by far the most important sector of Malawi's economy contributing 34 percent to GDP in 2006. Agriculture accounts for about 90 percent of the country's export earnings, with tobacco alone accounting for 60 percent, and provides employment for 81 percent of the economically active population. Malawi's agricultural sector is characterized by a dualistic structure: a low input/low productivity smallholder sector and high input/high productivity estate sector. The smallholder sub-sector comprises a very large number of small-scale farmers growing mainly food crops for their own consumption. The estate sector comprises a much smaller number of large-scale farmers, producing almost entirely for the export market.

Total irrigation potential was estimated in the early 1990s to be 162 000 ha, including existing dambos. Other estimates range from 200 000 ha for formal irrigation up to 480 000 ha for informal irrigation. The potential for small-scale irrigation is estimated at 100 000 ha. In the last two decades, Malawi has experienced a number of adverse climatic hazards. The droughts and floods, have since increased in frequency, intensity and magnitude over the same two decades, and have adversely impacted on food and water security, water quality, energy and sustainable livelihoods of the most rural communities. Floods have resulted in the disruption of hydroelectric power generation, water pollution and increased incidence of diseases, such as malaria, cholera and diarrhoea. On the other side, hydropower greatly suffers from the recurrent droughts faced by Malawi.

Malawi's total renewable water resources are estimated at 17.28 km³/yr. From this, 16.14 km³/yr are produced internally, while about 1 km³/yr comes from Mozambique via the Ruo River and 0.14 km³/yr is from a lake shared with Mozambique along the course of the Shire River. Malawi's energy resources include biomass, coal, hydropower, solar and wind. The government-owned electric utility (Electricity Supply Corporation of Malawi (ESCOM)) has an installed hydropower capacity of 284 MW. Almost 100% of the electricity generated in Malawi comes from hydropower from the outflow of Lake Malawi. Of the existing hydropower generation capacity in Malawi, 98 percent is from run-of-river (ROR) plant on the Shire River. Malawi's Shire River supports four hydroelectric plants, which account for the majority of the country's electrical output.

Malawi's agricultural development strategy and objectives has four major thrusts which are to: (i) increase the productivity and diversity of food crops in the smallholder sub-sector to meet the continued food security and improved nutrition status at the individual household and national level; (ii) promote tobacco production in the smallholder sub-sector so as to boost incomes and contribute to poverty alleviation; (iii) promote crop diversification; and (iv) promote the expansion of the livestock sector and its integration with mixed crop farming systems.

The investment envelope for the short-, medium- and long-term will cost US\$373 million to implement. In total it is estimated that the total area under the investment would cover 226 000 ha, with small-scale water control investments covering 209 000 ha, rehabilitation of irrigation schemes would cover 8 000 ha, while large-scale water projects would include new investments in large scale irrigation (9 000 ha).

1. CONTEXT

1.1. AGRICULTURE AND FOOD SECURITY

Agriculture

Agriculture is by far the most important sector of Malawi's economy. In 2007, the country's GDP was US\$3 552 million with agriculture contributing 34 percent in 2006. Agriculture accounts for about 90 percent of the country's export earnings, with tobacco alone accounting for 60 percent, and provides employment for 81 percent of the economically active population. Malawi's agricultural sector is characterized by a dualistic structure: a low input/low productivity smallholder sector and high input/high productivity estate sector. The smallholder sub-sector comprises a very large number of small-scale farmers growing mainly food crops for their own consumption. The estate sector comprises a much smaller number of large-scale farmers, producing almost entirely for the export market. In 2005, the cultivated area was about 2.44 million ha (21 percent of the area of the country).

Agriculture/irrigation is still by far the major water-withdrawing sector drawing 80%, followed by the domestic and municipal water supply, 15% and industry drawing 5%. The main food crop is maize, which accounts for nearly 90 percent of the cultivated land, supplemented by sorghum, millet, pulses, rice, root crops, vegetables and fruits. Industrial export crops grown by smallholders include cotton, rice, groundnuts and tobacco. The main estate-grown crops are tobacco, tea and sugar. Malawi is the second largest producer of tobacco in Africa after Zimbabwe.

Irrigation and water control

Total irrigation potential is estimated to be 400 000 ha, including existing dambos. Other estimates range from 200 000 ha for formal irrigation up to 480 000 ha for informal irrigation. The potential for small-scale irrigation is estimated at 100 000 ha. Most of the potentially irrigable land lies in the plains along the shores of Lake Malawi in Karonga and Nkhatakota - Salima, the Lake Chilwa Plain, the Lower Shire Valley with greatest potential for irrigation development and the flood plain of the Limphasa River in Nkhata Bay.

Rainwater harvesting is a relatively new technology in Malawi but offers the potential to supply water for human and livestock consumption, small-scale irrigation and intensive backyard garden cultivation using low-cost drip systems. In recent years, the Government has been committed to expanding sustainable small-scale irrigation under self-help initiatives and transferring existing Government schemes to management by water user associations.

Almost all irrigation is from surface water. Some small lakeshore areas are irrigated by groundwater. In 2002, an estimated 56 390 ha were equipped. Of these, 48 135 ha belonged to estates cultivating sugar cane, tea and coffee under irrigation. In 2008 an estimated 73 460ha were under formal irrigation of which 48 360ha are under estates and 25 100ha under smallholder farmers. In addition about 61000 ha of dambos were cultivated, bringing the total water managed area at 118 290 ha.

Food security

Malawi has a very high level of undernourishment, being 35 percent of the population undernourished. Both the proportion and the number of undernourished people, though, have decreased from 4.7 million in 1990-92, benchmark period of the World Food Summit (WFS)¹ and Millennium Declaration (MD), to 3.7 million for 1999 - 2001, the latest period available, and food supply has steadily improved during the nineties. However, food demand in Malawi has been increasing steadily also because of the absolute increase in population.

The country is currently not able to meet its food requirements, particularly in cereals. The causes of food shortages in Malawi are complex:

- The failure of food production to keep pace with increases in the human population;
- Lack of water (droughts) and inability to use it for agricultural production;
- Declining soil fertility, combined with shrinking average farm holdings;
- Inappropriate and outdated agricultural technologies.

¹ **World Food Summit goal:** halve, between 1990-92 and 2015, the number of undernourished people. The World Food Summit in 1996 established the target of halving the number of undernourished people by no later than 2015. FAO uses the average of the period 1990-92 as the baseline for monitoring progress towards this target.

But in addition, lapses in the government's early warning systems, unfavourable incentive structure, distortions in domestic markets, and mismanagement of food reserves are other important factors that have also exacerbated food security problems.

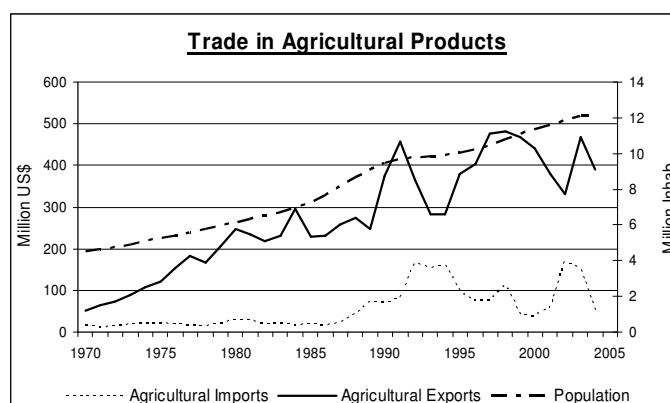
Given the relatively low rainfall in parts of the country and its monomodal pattern, the potential for increased production through higher cropping intensities is severely limited without some form of irrigation. Increased irrigation, particularly in the smallholder sub-sector, is therefore essential for increased crop production.

Food and agriculture trade and import balance

In 2004 exports were valued at US\$400 million (85% of exports are agricultural items and made up of tobacco 68%, tea 8% and sugar 8%) and imports were valued at US\$110 million. Malawi can historically be considered a net food exporter. In recent years, the amount of agricultural imports increased and the agricultural commercial bill shrank, though remaining widely positive.

The commercial bill – mirrored in the trend of imports and exports – shows an irregular trend in the ten-year period 1994-2004: the peaks are driven by extremely high imports of cereals, particularly wheat, in the years immediately following severe drought and floods which affected the country. The total commercial food bill in Malawi reached a value of approximately \$110million in 2004. The bill has dropped to about \$25million in 2005 and this is because the country's agricultural production especially for cereals had improved.

In 2004 cereals were contributing to a large share of the bill, accounting for 16%, and, in particular, wheat alone accounted for 15.5% of the total commercial bill. This picture appears far different in the years immediately following an extreme climatic event, where cereals accounted for 65% (1992), 72% (1998) and 70% (2002) of the total food import bill.



1.2. WATER RESOURCES AND HYDROPOWER

Malawi is generally considered to be relatively rich in water resources, which are stored in the form of lakes, rivers and aquifers. The country is divided into 17 Water Resources Areas (WRAs), which are subdivided into 78 Water Resources Units (WRUs). There are two major drainage systems and these are the Lake Malawi system, which is part of the Zambezi River basin and the Lake Chilwa system, which is shared with Mozambique. Malawi's total renewable water resources are estimated at 17.28 km³/yr (Annex 2). From this, 16.14 km³/yr are produced internally, while about 1 km³/yr comes from Mozambique via the Ruo River and 0.14 km³/yr is from a lake shared with Mozambique along the course of the Shire River. Almost all of the internal groundwater resources of 1.4 km³/yr are thought to be drained by the rivers, as Malawi is a humid, enclosed country. Water resource distribution is highly variable both seasonally and geographically, as nearly 90 percent of the runoff in major rivers occurs between December and June.

Lakes are a main feature of Malawi's water resources and the main ones are Lake Malawi, Lake Malombe, Lake Chilwa and Lake Chiuta. There are nine major dams with a height of more than 12 m and with a total storage of slightly over 43 million m³. They have been constructed mainly for municipal water supply, except for two that were constructed in the 1950s near Blantyre for hydroelectric purposes. In addition there are 700-750 small dams with a storage capacity of approximately 64 million m³, most of which were built during the colonial period and are in various

states of disrepair. Currently the government has embarked on the rehabilitation of some of these small dams through various programmes as part of the national water conservation strategy.

Malawi is rich in wetlands, which include lakes, rivers, many reservoirs spread over the country and marshes. The most important marshes are the Elephant and Ndindi marshes in the Lower Shire Valley, the Vwaza Marsh in the Rumphi district, and the Chia Lagoon in Nkhotakota. The major wetlands of Lake Malawi and Lake Chilwa are closely monitored under the RAMSAR and UN biodiversity conventions.

A great part of Malawi's water resources, such as Lake Malawi, Lake Chilwa, Lake Chiuta, and Shire, Ruo and Songwe Rivers are shared with the neighbouring countries of Mozambique and the United Republic of Tanzania as transboundary and crossboundary waters. So far, no major conflicts have arisen over the utilization of these resources. However, in order to avoid potential conflicts, Malawi is signatory to a number of international treaties and conventions, including the SADC Protocol on Shared Watercourses and the 1997 UN convention of non-navigational uses of international waters. At a bilateral level, Malawi is implementing a project for the stabilization of the Songwe River course jointly with the United Republic of Tanzania, through the Malawi/the United Republic of Tanzania Joint Permanent Commission of Cooperation (JPCC), and is negotiating with Mozambique for the establishment of a Joint Water Commission. With Lake Malawi and the Shire River system being a sub-basin of the Zambezi watercourse, Malawi is actively participating in the on-going negotiations for the establishment of the Zambezi Watercourse Commission (ZAMCOM). Within the SADC region, Malawi is part of other initiatives such as the SIDA initiative and the FAO-supported Convention on the Management of Lake Malawi/Nyasa for Sustainable Development.

In Malawi about 8 percent of the population has access to electricity. The government-owned electric utility (Electricity Supply Corporation of Malawi (ESCOM)) has a total installed generation capacity of 306MW of which 284 MW is from hydro. Almost 100% of the electricity generated in Malawi comes from hydropower from the outflow of Lake Malawi. Of the existing hydropower generation capacity in Malawi, 98 percent is from run-of-river (ROR) plant on the Shire River. Malawi's Shire River supports four hydroelectric plants, which account for the majority of the country's electrical output. The planned expansion of domestic generation capacity would further increase dependence on the Shire River. Of great concern for Malawi is a situation of below-average hydrology, since low flow on the Shire River translates directly into reduced power output.

In August 1995, Southern African Development Community (SADC) member countries created the Southern Africa Power Pool (SAPP). SAPP started as a cooperative pool in which members seek to maximize economic and system reliability benefits through trade, while retaining maximum autonomy for individual members. In the longer term SAPP aims to facilitate the development of a competitive electricity market in the SADC region. In the 2006 SAPP Annual Report, the Mozambique-Malawi Transmission Interconnection is explicitly noted as a top priority for the regional pool. Malawi plans to increase domestic power generation capacity through expansion of the Kapichira Hydropower Station ("Kapichira II") on the Shire River, which would add 64MW and is planned to be on line in 2011. However, financing for Kapichira II is not yet in place so there is some uncertainty regarding the timing of commissioning. Moreover, a 31-mile transmission line connecting Malawi to Mozambique is expected to be constructed starting in 2009 and is expected to be finished in 18 months. Funding for the interconnector has already been secured from the World Bank.

1.3. CLIMATE CHANGE

In the last two decades, Malawi has experienced a number of adverse climatic hazards. The most serious ones have been dry spells, seasonal droughts, intense rainfall, riverine floods and flash floods. The droughts and floods, have increased in frequency, intensity and magnitude and have adversely impacted on food and water security, water quality, energy and sustainable livelihoods of the most rural communities. Extreme weather events due to climate variability and low capacity to adapt to the adverse impacts of climate change aggravate food security risks. The current droughts have resulted in poor crop yields or total crop failure, leading to serious food shortages, hunger and malnutrition. Flooding has also severely disrupted food production in several districts in the country. Crop failure has resulted in food insecurity and malnutrition, especially among vulnerable rural communities.

The energy sector is equally seriously affected by droughts and floods, which negatively impact on hydroelectric power generation along the Shire River, a major source of energy in Malawi. The water

flow disruptions have been exacerbated by siltation caused by poor and unsustainable agriculture practices, deforestation, and noxious weeds such as water hyacinths. Moreover, floods have resulted in the disruption of hydroelectric power generation, water pollution and increased incidence of diseases, such as malaria, cholera and diarrhoea. On the other side, hydropower greatly suffers from the recurrent droughts faced by Malawi. The Shire Valley hydroelectric system, which depends on flow from Lake Malawi, also came close to power restrictions due to insufficient water flow.

2. NATIONAL STRATEGIES FOR WATER, AGRICULTURE AND ENERGY

2.1 POLICY CONTEXT

Malawi's agricultural development strategy and objectives similar to those outlined in the 1995 Agricultural and Livestock Development Strategy and Action Plan (ALDSAP) has four major thrusts which are to: (i) increase the productivity and diversity of food crops in the smallholder sub-sector to meet the continued food security and improved nutrition status at the individual household and national level; (ii) promote tobacco production in the smallholder sub-sector so as to boost incomes and contribute to poverty alleviation; (iii) promote crop diversification; and (iv) promote the expansion of the livestock sector and its integration with mixed crop farming systems.

Policies and legislation policy issues related to agriculture are also addressed by the National Irrigation Policy and Development Strategy (2000) developed by the Department of Irrigation (DoI), the Water Policy (1996), the Water Resources Management Policy and Strategy (2000) developed by the Ministry of Water Development (MWD), and the Environmental Management Policy (1996). According to the Irrigation Policy and Development Strategy, the mission of the DoI is to manage and develop water and land resources for diversified, economically sound and sustainable irrigation and drainage systems under organized smallholder and estate management institutions and to maintain an effective advisory service. Following this policy, an Irrigation Act (No. 16 of 2001) was passed by Parliament in November 2001. The Act makes provision for the sustainable development and management of irrigation, protection of the environment from irrigation related degradations and establishment of a National Irrigation Board. The overall policy goal of the Water Resources Management Policy and Strategy is sustainable management and utilization of water resources in order to provide water of acceptable quality in sufficient quantities, and ensure availability of efficient and effective water and sanitation services that satisfy the basic requirements of every Malawian.

Government commitment to poverty reduction is in the Malawi Poverty Reduction Strategy Paper (MPRSP) in 2002. Although diversification of the economy is a key objective, the MPRSP acknowledges that for its three-year duration, the agricultural sector will remain the principal determinant of growth and therefore needs to be the focus of pro-poor policies. The strategy focuses on sustainable pro-poor economic growth; by ensuring macroeconomic stability; expanding and strengthening access to agricultural inputs; improving research and extension services; introducing farmer-friendly technologies; improving access to local and international markets; reducing land shortage and degradation; increasing investment in irrigation; and developing farmer cooperatives and associations.

The threat posed by extreme weather events to food, health, water and energy has been the driving force for the preparation in 2005 of Malawi's National Adaptation Programmes of Action (NAPA). The NAPA stresses urgent and priority action to "Improve community resilience to climate change through the development of sustainable rural livelihoods" and "Improve agricultural production under erratic rains and changing climatic conditions. The NAPA individuated priority areas of action to reduce the suffering of the most vulnerable communities by Improving community resilience to climate change through the development of sustainable livelihoods, Restoring forests in the Shire Valley Catchments to reduce siltation and water flow problems, Improving agricultural production under erratic rains and changing climatic conditions, Improving Malawi's preparedness to cope with drought and floods, Improving climatic monitoring to enhance Malawi's early warning capabilities and decision making and sustainable utilization of Lake Malawi and Lake Shore areas resources.

The country's food and nutrition insecurity as it stands remains a top government priority. In their efforts to promote economic growth as a means to increase food security, achieve the Millennium Development Goals (MDGs) and reduce poverty and aid dependency, the Government of Malawi is implementing the Malawi Growth and Development Strategy (MGDS). The MGDS is a nationally

owned, results-oriented, medium term framework inspired by Vision 2020 and lessons learnt from the Malawi Poverty Reduction Strategy Paper. It largely draws upon sector strategies, policies and plans that have been developed for the last few years, many of which have been supported by FAO and the UN in Malawi. The MGDS outlines five themes: Sustainable Economic Growth, Social Protection, Social Development, Infrastructure and Good Governance. Of notable mention, the main thrust of the MGDS is to create wealth through sustainable economic growth. As such, agriculture has been singled out as *the priority sector*; it is envisaged that the agriculture sector will lead to economic growth. Thus, attainment of MDGs will be dependant on a strong agriculture sector. Regarding sustainable economic growth, the MGDS calls for action in the following areas: 1) maximize contribution to economic growth through sources of growth; 2) create an enabling environment for private sector led growth; 3) attain food security; 4) boost exports so that they can lead to growth; 5) ensure economic empowerment of the Malawi people; and 6) ensure access to land and housing.

The threat posed by extreme weather events to food, health, water and energy has been the driving force for the preparation in 1994 of the National Environmental Action Plan (NEAP) in 1994, which identifies and highlights several environmental issues including: high soil erosion, low fertility, deforestation, overgrazing, over fishing, loss of biodiversity, water resources degradation and depletion, human habitat degradation, air pollution and climate change.

In addition, the National Adaptation Programmes of Action (NAPA), stresses urgent and priority action to:

- Improve community resilience to climate change through the development of sustainable livelihoods.
- Restore forests in the Shire Valley Catchments to reduce siltation and water flow problems.
- Improve agricultural production under erratic rains and changing climatic conditions.
- Improve Malawi's preparedness to cope with drought and floods.
- Improve climatic monitoring to enhance Malawi's early warning capabilities and decision making and sustainable utilization of Lake Malawi and Lake Shore areas resources.

Malawi's early warning capabilities and decision making and sustainable utilization of Lake Malawi and Lake Shore areas resources. African Development Bank (AfDB) has recently obtained approval by the Global Environmental Facility (GEF) Secretariat of a Project Preparation Grant (PPG) for a climate adaptation proposal - the Malawi Climate Adaptation for Rural Livelihoods and Agriculture - CARLA - which is one of the first projects to be approved by the GEF Secretariat under the Least Developed Countries Fund (LDCF) adaptation window. CARLA aims to address NAPA's priority actions by implementing climate change adaptation measures to improve resilience and adaptive capacity in vulnerable districts in Malawi.

Malawi has developed a power sector strategy that is designed to put in place measures to mitigate the consequences of a severe drought, while at the same time ensuring that the cost of power supply remains affordable, thereby supporting a focused effort to increase access to, reliability of, and quality of electricity supply. Key elements of Malawi's strategy include: (i) implementation of the interconnector with the Southern African Power Pool (SAPP) network by 2010 as the least-cost option for mitigating the risk of drought-related power crisis, and to allow the option to import as needed and export electricity when available; (ii) expansion of low cost domestic generation capacity by 2011; (iii) further addition to available capacity of 30 to 50 MW by 2015.

2.2 INVESTMENT ENVELOPE

The investment envelope for the short, medium and long term is presented in the Table below and expressed in million US \$. It is estimated that the total area under the investment would cover 226 000 ha: small scale water control investments (including small scale irrigation, soil and water conservation, etc.) would cover 209 000 ha, rehabilitation of irrigation schemes would cover 8 000 ha, while large scale water projects would include new investments in large scale irrigation (9 000 ha), flood control, dams and transfer works, and accompanying institutional strengthening investments. To implement these projects, Malawi will require US\$ 2604.6 million.

Time scale	Type of investment (million US\$)				
	Construction and rehabilitation of small scale irrigation schemes	Construction of large scale irrigation schemes	Construction of dams (water resources development)	Power generation and transmission	Total
Short-term	143	10	4.5	76.9	234.4
Medium-term	102	191	2.2	50	345.2
Long-term	46	750	300	929	2025
Total	291	951	306.7	1055.9	2604.6

2.3 PROJECT PORTFOLIO

Section 3 presents recently achieved, active and pipeline projects related to the above investment envelope. Currently, there are 8 project profiles already prepared that range from US\$5.3 million for an Integrated Water and Rural Agricultural Credit project to US\$59.9 million for a transboundary power project. There are also 11 recent and ongoing projects involving different donors ranging from about US\$2 million to about US\$79.2 million.

PROJECT PROFILES (ON-GOING AND PROJECTED)

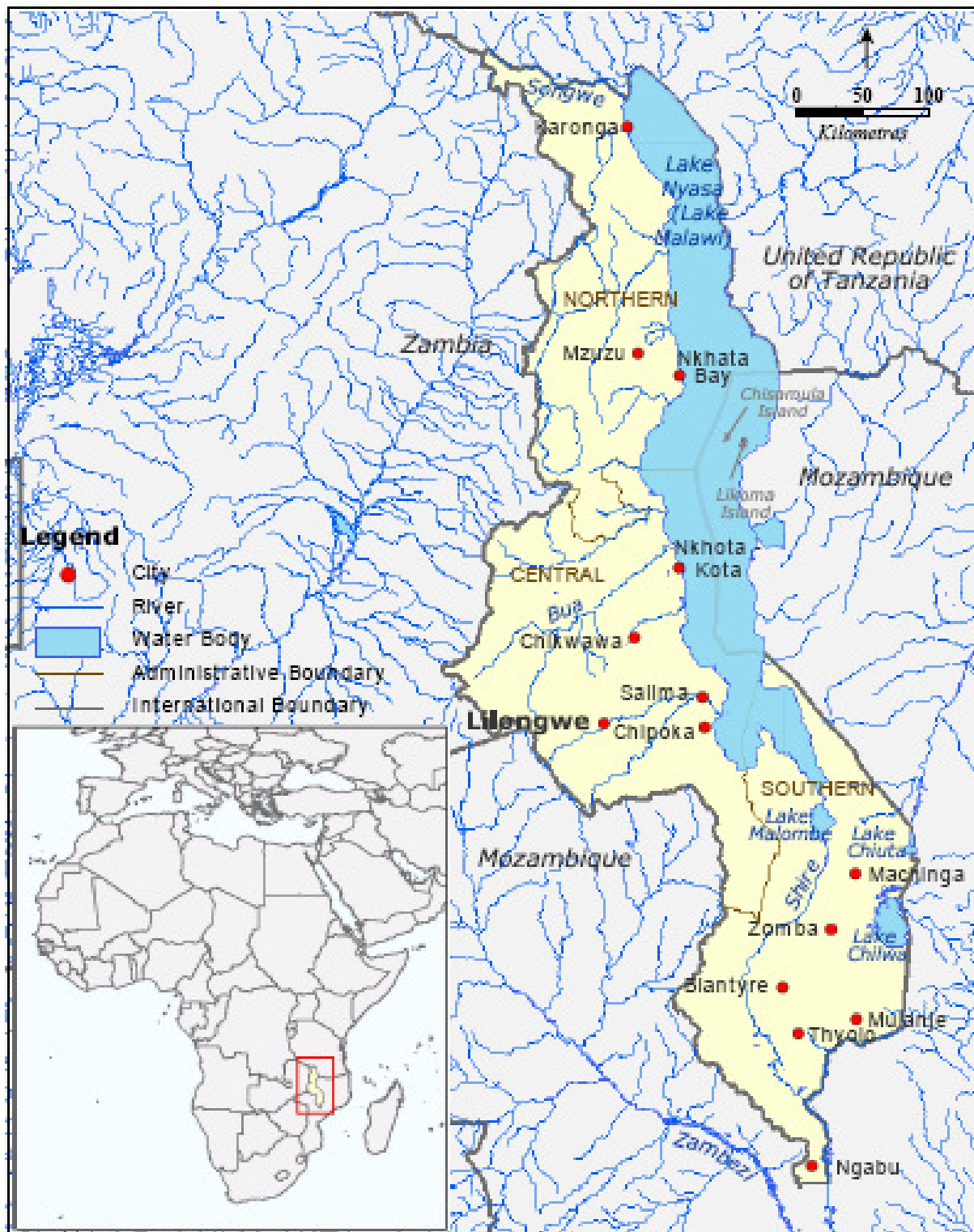
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Project title	Funding Partners	Lifeline	Total Budget	Description
I. PROJECTS RECENTLY IMPLEMENTED				
Rural Livelihoods and Economic Enhancement Programme	World Bank		US\$19.24million	
National Water Development Project	World Bank	1995 -2003	US\$79.2million	The project will reform and upgrade the management of water resources and the provision of water-related services to ensure convenient access to safe water. It will also secure investment for the rehabilitation and construction of rural water supply facilities, the Zomba dam, and treatment and distribution works
Smallholder Floodplains Development Project (SFPDP)	IFAD	1998-2006	US\$15.5 million	Rehabilitation and development of new irrigation schemes on lakeshore and capacity building of Water Users Association on eleven project sites.
II. ON-GOING PROJECTS				
National Programme for Food Security	World Bank, AfDB, FAO, Italy, Belgium, Norway	2005-2015	US\$ 363.9 million	The NAPFSN has five immediate objectives: 1. To improve farm productivity, incomes and household food security. 2. To improve the nutritional and health status of the most vulnerable; 3. To improve the system of support services in rural areas. 4. To safeguard the long-term sustainability of the country's renewable resource base and protect the ecosystem. 5. To identify and promote policy dialogue and initiatives.
Irrigation, Rural Livelihoods and Agricultural Development Project	WB, IFAD, Government, Beneficiaries	2006-2012	52.1 US\$ million	The project will provide farmers with seeds and fertilizer to restore agricultural production. To reduce the risks associated with rainfed farming, the project will also support rehabilitation and development of new irrigation systems, reservoirs and rainwater harvesting structures.
Smallholder Crop Production and Marketing Project	AfDB	2007-2013	US\$25	Project will raise agricultural productivity by development of 39 small schemes(3,055ha) and providing support services and institutional strengthening of WuA's.
Second National Water Development Project	World Bank, AfDB, EU, Kuwait fund	2007 - 2012	US\$50 million	The development objective is to increase access to sustainable water supply and sanitation services for people living in cities, towns, market centers, and villages and improve water resources management at the national level.
Second National Water Development Project - Additional Financing (ACGF)	World Bank	2008 - 2011	US\$25 million	The new project will expand water supply and sanitation services to the towns and also strengthen the operational efficiency of the Water Boards in the planning and delivery of water supply and sanitation services.
Development of Smallholder Irrigation Schemes Technical Cooperation Project	JICA	2006-2009	US\$3.0 million	Capacity building through training in low cost smallholder irrigation technologies
Farm Income Diversification Programme (FIDP)	EU	2004-2009	US\$16.2 million	Marketing support to small scale horticultural farmers in 11 districts.
Rural Livelihoods and Economic Enhancement Programme	IFAD	2008-2014	US\$16.8 million	The programme has three components: (i) value-chain mobilization and organization; (ii) agricultural productivity enhancement and commercialization; and (iii) programme facilitation and management.
Malawi Horticulture Network	USAID	2008-2011	US\$2.0 million	Increase irrigated land and conservation land management
Tedezani 1 and 2	(SAPP)	End: 2008	US\$ 17 million	Rehabilitation of existing plant (40 MW). Currently load shedding due to low generation capacity
Smallholder Irrigation Project	AfDB	2000-2008	US\$8 million	Project will raise incomes for 10000farmers and developing 4600Ha of irrigated land and rehabilitate 4 earth dams. Will also support marketing and training of farmers, supporting

				training institutions of Bunda College of Agriculture and Natural Resources College.
Horticulture and Food Crops Development Project	AfDB	2000-2008	US\$12 million	The project will develop 1354Ha for irrigation benefitting 8400 farmers, rehabilitate 9 earth dams. Will also support marketing.
Infrastructure Services	World Bank	5	US\$32.6 million	The project will improve household welfare and strengthen economic growth in market centers and surrounding rural areas through the provision of core infrastructure services like roads, water supply and sanitation, electricity and telecommunications.
Farm Income Diversification Programme	EU	2005-2011	US\$20 million	EU considering launching a second phase of FIDP. Unclear whether through ADP or separate
Agricultural Development Program Support Project	World Bank, Norad	5 years	US\$51.8 million	Project aims to improve the effectiveness of investments aimed at food security and sustainable agricultural growth.
Small Farms Irrigation Project	BADEA	2003-2009	US\$10 million	Developing 1600 ha of land under irrigation and marketing
III. PIPELINE PROJECTS				
Integrated Water and Rural Agricultural Credit	GoM/ ICP	2009 - 2014	US\$5.29 million	The project will focus mainly on integrated water management, irrigation development and establishment of sustainable credit institutions and systems in the project area.
Climate Adaptation for Rural Livelihoods and Agriculture (CARLA)	AfDB	2009 - 2014	US\$24.3 million	The project objective is to "improve resilience to current climate variability and future climate change by developing and implementing cost-effective adaptation strategies, policies and measures that will improve agricultural production and rural livelihoods".
Southern African Power Market Program (APL 2)	World Bank	2009 - 2015	US\$59.9 million	The project will have three components namely Mozambique - Malawi Interconnection; Capacity Building and Technical Support for Upgrade and Expansion to Support Power Trading; and Improved Infrastructure to Support Power Trading
Smallholder out-grower sugar cane production	AfDB	5 years	US\$25 million	Expand the first phase of the project
Commercial agriculture	WB	2010-2015	US\$20-25 million	Will possibly involve irrigation/ water control infrastructure
Integrated Water Management and Rural Agricultural Credit	FAO-NEPAD, Government, Beneficiaries, Development Partners	5 years	US\$5.3 million	The proposed project will have the following main components; Component 1: Irrigation Development; Component 2: Farmers' Support Programme for Irrigation; Component 3: Integrated Water Management.
Kaphichira Phase-2	Finances being sought	2010	US\$ 50 million	New hydro plant (64MW) with a transmission line to existing substation. Would address the current load shedding in Malawi. Project to offset power imports.
Low Fufu		2012	US\$ 141 million	New hydro power development (100MW). Feasibility Studies to be done
Kholombizo		2018	US\$ 391 million	New hydro power development (240MW). Feasibility Studies to be done
Mpatamanga		2020	US\$ 397 million	New hydro power development (260MW). Feasibility Studies to be done
Shire Valley Irrigation Project	Finances being sought	2009-2014	US\$191 million	New irrigation Project covering 42,320Ha. Designs already done

Sources: NMTIP; AfDB, IFAD, World Bank; FAO TCIS

ANNEX 1: MAP OF WATER CONTROL IN MALAWI:



ANNEX 2: COUNTRY STATISTICS

Country and population								
Area of the country	2005	11848	1000 ha					
Cultivated area as % of the total area of the country	2005	23.1	%					
Total population	2005	12884	1000 inhab					
• of which rural	2005	83	%					
Population economically active in agriculture	2005	4903	1000 inhab					
• as % of total economically active population	2005	81	%					
• female	2005	56	%					
• male	2005	44	%					
Economy and Development								
Gross Domestic Product (GDP) (current US\$)	2007	3552	million US\$/yr					
• value added in agriculture (% of GDP)	2006	34.15	%					
• GDP per capita	2007	255	US\$/yr					
Access to improved drinking water sources								
Total population	2006	76	%					
Urban population	2006	96	%					
Rural population	2006	72	%					
Water Resources and management								
Average precipitation	2007	140.0	10 ⁹ m ³ /yr					
Total actual renewable water resources	2007	17.28	10 ⁹ m ³ /yr					
Dependency ratio (transboundary rivers)	2007	6.6	%					
Total actual renewable water resources per inhabitant	2007	1341	m ³ /yr					
Total dam capacity	2000	0.043	10 ⁹ m ³					
Total water withdrawal	2000	1.01	10 ⁹ m ³ /yr					
• as % of total actual renewable water resources	2000	5.84	%					
IRRIGATION AND DRAINAGE								
Irrigation potential	2007	400	1000 ha					
Water Management								
Area equipped for irrigation: full control - total	2008	73.46	1000 ha					
Equipped lowlands	2002	0.00	1000 ha					
Total area equipped for irrigation	2002	56.39	1000 ha					
• Area equipped for irrigation as % of cultivated area	2002	2.3	%					
• Annual increase rate		7.3	%					
• Power irrigated area as % of area equipped for irrigation		-	%					
• Area actually irrigated as % of area equipped for irrigation	1992	96.0	%					
Non-equipped cultivated lowlands and flood recession	2000	61.90	1000 ha					
Total agricultural water managed area	2002	118.29	1000 ha					
• Agricultural water managed area: as % of cultivated area	2002	4.8	%					
• Drained cultivated area as % of total cultivated area		-	%					
Typology of irrigation schemes								
Small-scale schemes			1000 ha					
Medium-scale schemes			1000 ha					
Large-scale schemes			1000 ha					
Irrigated crops								
Rice	2002	8.38	1000 ha					
Maize	1992	2.00	1000 ha					
Sugar cane	2000	21.685	1000 ha					
Vegetables	1998	3.00	1000 ha					
Coffee	2000	5.45	1000 ha					
Tea	2000	21.00	1000 ha					
Other annual crops	1992	1.65	1000 ha					
Other perennial crops	1992	1.65	1000 ha					
ENERGY INDICATORS								
Energy Production			Mtoe					
Net Imports			Mtoe					
TPES			Mtoe					
- TPES/Pop			toe/capita					
- TPES/GDP			toe/thousand 2000 US\$					
- TPES/GDO (PPP)			toe/thousand 2000 US\$ PPP					
Electricity Consumption			TWh					
- EC/Pop			kWh/capita					
ENERGY SUPPLY AND CONSUMPTION								
	Coal	Gas	Crude oil	Petroleum products	Hydro	Other Renewable & Waste	Others	TOTAL
Production								
Imports								
Exports								
International Marine								

Bunkers
Stock Changes
**Total Primary Energy
Supply (TPES)**

* in thousand tonnes of oil equivalent (ktoe) on a net calorific value basis.

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