COUNTRY PROFILE: MALAWI

Overview of Malawi's health system

PREPARED BY: *The Bertha Centre for Social Innovation and Entrepreneurship, Graduate School of Business, University of Cape Town*

AUTHORS: *Joseph Lim, Eldi van Loggerenberg, and Rachel Chater*

World Health Organization

TDR For research on diseases of poverty
UNICEF • UNDP • World Bank • WHO

SOCIAL INNOVATION IN HEALTH INITIATIVE

SKOLL CENTRE FOR SOCIAL ENTREPRENEURSHIP
SAID BUSINESS SCHOOL
UNIVERSITY OF OXFORD

LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE

GRADUATE SCHOOL OF BUSINESS
UNIVERSITY OF CAPE TOWN
BERTHA CENTRE

CONTENTS

LIST OF TABLES

LIST OF ABBREVIATIONS

AIDS	Acquired immune deficiency sydrome
CHAM	Christian Health Association of Malawi
DHIS2	District Health Information System
EHP	Essential Health Package
HIV	Human immunodeficiency virus
HSA	Health surveillance assistant
HSSP	Health Sector Strategic Plan
MDG	Millennium Development Goal
MGDS	Malawi Growth and Development Strategy
NAC	Nyasaland African Congress
UDF	United Democratic Front
US$	United States dollar
WHO	World Health Organization

EXECUTIVE SUMMARY

Malawi is landlocked in South-Eastern Africa, bordering Mozambique, the United Republic of Tanzania, and Zambia. The population is ethnically diverse, with most people living in rural areas and practising Christianity. The government is a multi-party democracy and Arthur Peter Mutharika currently serves as president. The economy has grown over the past decade with increases in sectors such as agriculture, information and communication technology and retail. Key challenges include high poverty and inequality, limited access to foreign financing and gaps in human resources, public services and infrastructure. The burden of disease is mostly communicable, with high maternal and child mortality rates. The targets for Millennium Development Goal (MDG) 5 are unlikely to be met, but reasonable progress has been made towards MDGs 4 and 6. Non-communicable diseases, particularly hypertension and diabetes, are increasing. Shortages in medical supplies, drugs and human resources need to be addressed, in addition to improving financial management capacity and the equitable allocation and refurbishment of infrastructure. Local factors may hinder research and innovation, but nascent innovation hubs have been developed and the government has prioritised research and development in sectors such as water, sanitation and manufacturing.

1. COUNTRY AT A GLANCE

Component	Details/indicator/year	Data
Population	Total population (2014)	16 695 253[a]
	Percentage of urban vs. rural (2014)	Urban: 16, rural: 84[a]
Geography	Malawi is landlocked in Southern Africa. The terrain has four main regions: the East African Rift Valley, central plateaus, highlands, and isolated mountains. Climate is characterised by two main seasons: the dry season that runs from May to October, and the wet season that runs from November to April.[b]	
Ethnic composition	10 major ethnic groups: Chewa, Nyanja, Lomwe, yao, Tumbuka, Sena, Tonga, Ngoni, Ngonde, and the Lambya/Nyiha.[b]	
Government	Malawi is a multiparty republic. The president serves as head of state and government, while the legislature is unicameral and represented by the National Assembly. The president and members of the Assembly are elected to five-year terms. The legal system is based on the system that prevailed during the British colonial era and consists of a Supreme Court of Appeal, a High Court, and subordinate courts.[b]	
Economic and infrastructure data	GDP per capita (purchasing power parity) (2014)	US$ 821.6 (current international dollars)[a]
	Economic growth as percentage of GDP (2014)	5.7[a]
	Gini-index (2013)	43.9[c]
	HDI (2014)	0.445 (ranked 173)[d]
	Percentage of people below national poverty line (2010)	50.7[a]
	Percentage of unemployment (2014)	7.5[d]
	Percentage of adult literacy (2010)	61[a]
	Education gender parity index (2013)	1.01[a]
	Percentage of population with access to sanitation (2015)	Access to improved drinking water: 90 (urban: 96, rural: 89)[a] Access to improved sanitation facilities: 41 (urban: 47, rural: 40)[a]
	Percentage of population with access to electricity (2012)	9.8[a]
Health system	Health expenditure as a percentage of GDP (2014)	9.6[a]
	Annual public expenditure on health as percentage of total health expenditure (2014)	62.7[a]
	Health expenditure per person (2014)	US$ 24 (current US$)[a]
	Number of physicians per 1 000 population (2010)	0.019[a]
	Number of nurses and midwives per 1 000 population (2010)	0.3[a]
	Percentage of births with skilled attendants (2012)	71[f]

	Average life expectancy in years (2014)	63[a]
Disease burden	HIV prevalence as percentage among adults aged 15–49 (2014)	10[g]
	Deaths due to AIDS (2014)	33 000[g]
	Deaths due to non-communicable diseases (2012)	41 900[h]
	Deaths due to homicide (2012)	321[h]
	Maternal mortality rate per 100 000 births (2015)	634[a]
	Infant mortality rate per 1 000 births (2015)	43[a]
	Under-five mortality rate per 1 000 births (2015)	64[a]
Top five causes of mortality as percentage of deaths (2012)[i]	1. HIV/AIDS 2. Lower respiratory infections 3. Malaria 4. Stroke 5. Diarrhoeal diseases	27.1 8.6 6.3 5.7 4.6
Top five causes of DALYs (2012)[i]	1. HIV/TB/malaria 2. Maternal/neonatal/nutritional 3. Other infectious diseases 4. Acute respiratory infections 5. Other non-communicable diseases	ND ND ND ND ND

GDP: gross domestic product; gini-index: measures the extent to which the distribution of income (or consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution; HDI: human development index; DALYs: disability-adjusted life years; TB: tuberculosis; ND: not determined.
Sources: [a] World Bank (2015a); [b] Kalinga (2015); [c] UNDP (2013); [d] UNDP (2015); [e] Miller & Kim (2015); [f] UNICEF (2014); [g] Joint United Nations Programme on HIV and AIDS (2014); [h] WHO (2015b); [i] WHO (2015c).

2. COUNTRY CONTEXT

2.1 COUNTRY HISTORY AND POLITICAL SYSTEM

Formerly, Malawi was known as the British Central African Protectorate and later Nyasaland, after nationalists established the Nyasaland African Congress (NAC) in 1944. In a contested move, the British combined Nyasaland with the Federation of Northern and Southern Rhodesia (now Zambia and Zimbabwe, respectively) in 1953. The NAC was banned after increasing conflict with the government, which led to the founding of the Malawi Congress Party in 1959. Dr Hastings Kamuzu Banda, imprisoned party leader, was released a year later and negotiated constitutional reform with British leaders in London. This culminated in legislative elections in 1961, self-government status in 1963 with Banda as prime minister and finally independence in 1964, with Nyasaland renamed Malawi (BBC, 2015).

Malawi was a one-party state in 1966, with Banda as president; and in 1972 he suppressed opposition declaring himself as president-for-life. During 1978 elections, all candidates were required to belong to the Malawi Congress Party and be approved by Banda. During the 1980s, Banda frequently reshuffled his cabinet to prevent the rise of a potential rival and several politicians were murdered or

charged with treason. Banda's repressive political system resulted in the suspension of aid from many donor countries. Voters rejected the one-party state in a referendum in 1993 (BBC, 2015).

Bakili Muluzi of the United Democratic Front (UDF) won elections in 1994, freeing political prisoners and re-establishing freedom of speech. Muluzi was re-elected in 1999, and the World Bank cancelled half of Malawi's foreign debt a year later. Bingu wa Mutharika, also of the UDF, won the presidency in 2004 and announced the provision of free anti-viral drugs for AIDS. He later left the UDF due to perceived hostility to his anti-corruption campaign and formed the Democratic Progressive Party, surviving an impeachment attempt by the UDF. Mutharika won a second term in 2009 and while some report that his rule became increasingly autocratic, he died in office in 2011 and was succeeded by vice-president Joyce Banda. Following charges of widespread corruption, Banda sacked her cabinet in 2013, losing elections in 2014 to Mutharika's brother: Peter Mutharika (BBC, 2015).

2.2 POPULATION

Malawi's population of 16.7 million (World Bank, 2015b) comprises a number of ethnic groups including: Chewa, Nyanja, Lomwe, Yao, Tumbuka, Sena, Tonga, Ngoni, Ngonde and the Lambya/Nyiha (Kalinga, 2015). The population is mostly rural, with only 16% living in urban areas (World Bank, 2015b). English is the language used widely in business, higher education, official correspondence and other areas; though other major Bantu languages are also widely spoken including Chewa, Lomwe, Yao and Tumbuka. About three-fourths of the population practise Christianity, another fifth practise Islam and a small proportion follow traditional beliefs (Kalinga, 2015). Life expectancy is 55 years (World Bank, 2015b) and the median age is approximately 17 years (United Nations, 2015).

2.3 ECONOMY

Table 1. Economic measures of Malawi

Indicator/year	Data
GDP per capita (purchasing power parity) (2014)	US$ 821.6 (current international dollars)[a]
Economic growth percentage in GDP (2014)	5.7[a]
Debt as percentage of GDP (2015)	83.4[b]
Gini-index (2013)	43.9[c]
HDI (2014)	0.445 (ranked 173)[d]
Percentage of people below national poverty line (2010)	50.7[a]
Percentage of unemployment (2014)	7.5[e]

GDP: gross domestic product; gini-index: measures the extent to which the distribution of income (or consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution; HDI: human development index.
Sources: [a] World Bank (2015b); [b] IMF (2015); [c] UNDP (2013); [d] UNDP (2015); [e] Miller & Kim (2015).

With assistance from the International Monetary Fund and the World Bank, Malawi has made key economic gains over the last decade. Increases in gross domestic product were most recently driven by growth in agricultural, information and communication technology and wholesale and retail trades. However, poverty and inequality is high. Over half of the population live in poverty and a quarter live in extreme poverty according to the latest household survey for 2010–2011. Much of the population is engaged in low productivity subsistence farming.

The government currently has a budget deficit with limited access to foreign financing following the "cashgate" scandal (World Bank, 2015a) in which government officials diverted funds through a loophole in the government's computer-based financial information storage system (BBC, 2014). This has made the government reliant on domestic sources, which carries the risk of increasing inflation and lending rates as well as crowding out private investment. To ensure continued economic growth, Malawi needs: an improved infrastructure, an increase in human health resources and solutions for the inefficiencies in public services in order to streamline private investment. The recent reform of Malawi's Public Financial Management System is expected to help restore public and donor confidence (World Bank, 2015a).

2.4 ENVIRONMENT

Malawi is landlocked in Southern Africa, stretching about 840 km from north to south and between 10 to 160 km from east to west. The terrain is diverse, with four identifiable regions: the East African Rift Valley, central plateaus, highlands and isolated mountains. Climate is characterised by two main seasons: the dry season that runs from May to October and the wet season that runs from November to April. Temperatures vary with the season and generally decrease with elevation. Precipitation is highest over parts of the northern highlands and on the Sapitwa peak of the Mulanje massif, amounting to 2 300 mm per annum; it is lowest in the lower Shire valley, ranging from 650 to 900 mm (Kalinga, 2015). Malawi is prone to natural disasters associated with climate change, with droughts in 2002 and 2005 (BBC, 2015) and floods in 2015 that displaced an estimated 162 000 people (IOM, 2015).

3. HEALTH SYSTEM

3.1 OVERVIEW

The burden of disease in Malawi is mostly communicable, though non-communicable diseases are increasing (WHO, 2014). Progress has been made with regards to Millennium Development Goals (MDGs) 4 and 6, although it is unlikely that targets for MDG 5 will be met (Government of Malawi, 2014). Overall, maternal and child mortality rates remain high as does the prevalence of infectious diseases such as malaria and tuberculosis (WHO, 2014). Other challenges include a shortage of drugs and health human resources, unevenly distributed infrastructure in need of refurbishment and a lack of financial management capacity (Government of Malawi, 2011). The government has taken numerous steps to counter these challenges, such as conducting National Health Accounts assessments (WHO, 2014) and accounting for non-communicable diseases in the essential health package (Government of Malawi, 2011).

3.2 ORGANIZATION

The Ministry of Health is responsible for the development of policies, standards, protocols and technical support for the supervision of services as well as the management of central hospitals. Five zonal offices provide support to district health management teams in the planning, delivery and monitoring of health services at the district level. The Ministry of Local Government and Rural Development is also involved in overseeing health services at the district level (Government of Malawi, 2011).

Malawi has a three-tiered health system, which is described below (Government of Malawi, 2011).

1. **Primary level**: includes community initiatives, health posts, dispensaries, maternity facilities, health centres and community & rural hospitals. Community-based agents, such as health surveillance assistants (HSAs) and distributing agents, provide health services at the community level through door-to-door visits, village clinics and mobile clinics. HSAs provide services in health promotion and prevention such as HIV testing and counselling and immunization. Community health nurses and other workers also conduct outreach programmes. Health centres and village health committees support HSAs and health centres provide both curative and preventive essential health package services. Community and rural hospitals also provide primary care.
2. **Secondary level**: comprised of district hospitals, with at least one district hospital in each district. District hospitals provide essential health package services, general services, primary health care services and technical supervision to lower units with services managed by district health management teams that receive support from zonal health support offices. Referral facilities are available at health centres and rural hospitals; and in-patient and out-patient services are delivered to local town populations. District hospitals also provide in-service training for health personnel and support community-based health programmes in the provision of the essential health package. The Christian Health Association of Malawi (CHAM) also provides secondary care.
3. **Tertiary level**: consists of central hospitals that provide referral health services and specialised services for their respective regions. Central hospitals also provide essential health package services. Gateway clinics have been established at central hospitals and these are run by district health officers to relieve pressure on hospital services. Central hospitals also provide professional training, research and support to districts.

The private sector plays an important role in health service delivery. CHAM is the largest partner of the Ministry of Health and oversees facilities heavily subsidised by the government and located mostly in rural areas with little overlap with government facilities. Numerous other non-governmental organisations, faith-based organisations and community-based organisations provide promotive health services at the community level. The government has mainly engaged with traditional birth attendants to expand maternal and child health services, although the relationship between government and other traditional practitioners has been weak. The government has drawn up a Malawi Traditional Medicine Policy and is currently working through the Malawi Traditional Healers Umbrella Organisation to increase engagement with traditional practitioners (Government of Malawi, 2011).

3.3 CAPACITY

Table 2. Number of facilities and health workers per population, Malawi

Indicator	Data		
Medical facilities (2010)[a]	Public	CHAM	Public/CHAM
Central hospitals	4	0	0
District hospitals	23	0	0
Mental hospitals	1	1	0
Community/rural hospitals	19	18	0
Other hospitals	1	20	0
Health centres	313	109	1
Dispensaries	65	12	0

Maternity facilities	15	4	0
Rehabilitation units	1	1	0
Beds per 1 000 population (2011)		1.3[b]	
Physicians per 1 000 population (2010)		0.019[b]	
Nurses and midwives per 1 000 population (2010)		0.3[b]	
Community health workers per 1 000 population (2008)		0.7[b]	

CHAM – Christian Health Association of Malawi.
[a] Government of Malawi (2011); [b] World Bank (2015b).

Community and rural hospitals each have 200–250 beds and district hospitals at the secondary level of care each have 200–300 beds. The four central hospitals are Queen Elizabeth, Kamuzu, Mzuzu, and Zomba, which each have 1 250 beds, 1 200 beds, 300 beds and 450 beds, respectively (Government of Malawi, 2011).

Facilities are often short of drugs and other medical supplies due to lengthy procurement processes, poor specifications and weak logistical information systems. Infrastructure is unevenly distributed, with some geographical areas lacking coverage. Facilities often lack information and communications technologies as well as basic refurbishment. The health system is also understaffed, although the situation has improved significantly since the implementation of a six-year Emergency Human Resource Plan. The number of health care workers, for instance, increased by 53% from 5 453 in 2004 to 8 369 in 2010. The shortage of human resources still affects other components of the health system, such as laboratory and radiology services and monitoring and evaluation (Government of Malawi, 2011).

The Queen Elizabeth and Kamuzu central hospitals serve as teaching hospitals and are linked to the College of Medicine and the Kamuzu College of Nursing. Mzuzu University and the Malawi College of Health Sciences also serve as training institutions. In addition, CHAM trains health workers through its own institutions and oversees 11 of the 16 training institutions available in Malawi; most of which are in rural areas (Government of Malawi, 2011).

3.4 POLICY ENVIRONMENT

The World Health Organization (WHO) (2014) states:

> The Malawi Growth and Development Strategy II (2011-2016) is the overarching medium term strategy designed to attain Malawi's long term aspirations as spelt out in the Vision 20:20. The MGDS II is built around six broad thematic areas namely: Sustainable Economic Growth; Social Development; Social Support and Disaster Risk Management; Infrastructure and Improved Governance; and Cross Cutting Issues. The National Health Bill is under review to replace the Public Health Act of 1948, while the National Health Policy is still in draft form.
>
> The Health Sector Strategic Plan (HSSP) 2011-2016 is aligned with the MGDs and guides the implementation of the health interventions. The HSSP emphasises increasing coverage of high quality Essential Health Package (EHP) services and strengthening performance of the health systems to improve equity, efficiency and quality of EHP services in Malawi. The health care delivery system mainly consists of government facilities (63%), Christian Health Association of Malawi (26%) and some private for-profit providers.

To strengthen timely reporting and use of data at all levels, the country has introduced a web-based District Health Information System (DHIS2) since 2011. This is expected to strengthen monitoring of the disease burden in the country.

WHO (2014) lists the following strategic priorities for Malawi.

1. Strengthen institutional capacity for prevention and control for communicable and non-communicable diseases.
2. Enhance early warning system for preparedness detection and response to emergencies and disease epidemics.
3. Improve capacity for the delivery of maternal and child health services.
4. Strengthen the health-system capacity for equitable and efficient service delivery.
5. Promote evidence-based decision-making at all levels of the health system.
6. Address social and environmental determinants of health.
7. Promote intersectoral action and community involvement for health based on the principles of Primary Health Care.

3.5 HEALTH FINANCING

Table 3. Health financing data for Malawi, 2014

Indicator	Data
Total health expenditure (current US$)	US$ 407 228 000
Public expenditure on health as percentage of total expenditure	62.7
Public expenditure on health as percentage of general government expenditure	16.8
Out-of-pocket expenditure on health as percentage of total private expenditure	33.9
Private insurance expenditure on health as percentage of total private expenditure	-
Expenditure of non-profit institutions serving households as percentage of total private expenditure	-
External funding (current US$)	US$ 357 452 000
Health expenditure as percentage of GDP	9.6

GDP: gross domestic product.
Source: WHO (2015a)

Government and donor funding has increased since 2004, from US$ 46.3 milion to US$ 21.3 million (Government of Malawi, 2011) to current amounts shown in Table 3 (WHO, 2015a). However, challenges in health financing remain. For example, the untimely disbursement of donor funds, which has forced the government to borrow from the domestic market at high interest rates, has resulted in increased costs to the health sector. A significant share of donor funds are off budget. Furthermore, although the government has made public services free, household out-of-pocket (OOP) payments have increased, which has been exacerbated by the government's limited ability to regularly track the sources of health financing and their utilisation (Government of Malawi, 2011).

Malawi is developing a health financing strategy to increase health funding and move towards universal health coverage. Since 1998, the government has conducted National Health Account

assessments with the WHO's support in an effort to track resources and institutionalise them (WHO, 2014).

3.6 COUNTRY DISEASE PROFILE

Table 4. Disease profile for Malawi

Indicator/year	Data
Age-standardized DALYs per 100 000 for communicable diseases (2012)	41 634[a]
Age-standardized DALYs per 100 000 for non-communicable diseases (2012)	24 552[a]
Age-standardized DALYs per 100 000 for injuries (2012)	4492[a]
Under-five mortality rate per 1 000 live births (2015)	64[b]
Infant mortality rate per 1 000 live births (2015)	43[b]
Maternal mortality rate per 100 000 live births (2015)	634[b]
Estimated cases of malaria (2013)	3 500 000[a]
Estimated deaths due to malaria (2013)	7 800[a]
Prevalence of TB per 100 000 (2014)	334[a]
Incidence of TB per 100 000 (2014)	227[a]
Deaths due to TB among HIV-negative people per 100 000 (2014)	17[a]
Prevalence of HIV among adults aged 15–49 (2014)	10[c]
Deaths due to AIDS (2014)	33 000[c]
Deaths due to non-communicable diseases (2012)	95 900[a]
Deaths due to homicide (2012)	4 358[a]
Percentage of top five causes of mortality (2012)[d]	
1. HIV/AIDS	27.1
2. Lower respiratory infections	8.6
3. Malaria	6.3
4. Stroke	5.7
5. Diarrhoeal diseases	4.6
Top five causes of DALYs (2012)[d]	
1. HIV/TB/malaria	ND
2. Maternal/neonatal/nutritional	ND
3. Other infectious diseases	ND
4. Acute respiratory infections	ND
5. Other non-communicable diseases	ND

DALYs: disability-affected life years; TB: tuberculosis.
Sources: [a] WHO (2015b); [b] World Bank (2015b); [c] Joint United Nations Programme on HIV and AIDS (2014); [d] WHO (2015c).

Malawi has high maternal and child mortality rates in addition to a high burden of communicable diseases. Progress in achieving targets for MDGs 4 and 6 (Government of Malawi, 2014) has been accomplished partly through interventions such as vaccines, investment in national disease control efforts such as the distribution of condoms and HIV testing and counselling (Government of Malawi, 2011). However, Malawi is unlikely to meet targets for MDG 5, with the maternal mortality rate remaining high (Government of Malawi, 2014). The government has identified key strategies to reduce maternal mortality and fertility rates by increasing access to emergency obstetric care for pregnant

women and investing in family planning. In addition to the above challenges, malnutrition is high with 47% of children under the age of five stunted and 20% severely stunted (Government of Malawi, 2011).

Non-communicable diseases are on the rise (Government of Malawi, 2011) with high levels of diabetes and hypertension. The prevalence of hypertension is currently higher in Malawi than in the United States and the United Kingdom (35% versus 27%) (Msyamboza et al., 2011). The government has included coverage for non-communicable diseases in the essential health package including interventions such as screening for cervical cancer, hypertension and diabetes (Government of Malawi, 2011).

4. INNOVATION ECO-SYSTEM

The government has prioritised investment in irrigation, water and sanitation, in addition to investing in other sectors such as energy, mining, tourism and infrastructure (UNESCO, 2014). Numerous incubators and networks have also been established: mHub, the country's first tech incubator (Jackson, 2015); the Malawi Network, a collaboration with the Malawi Innovation Challenge Fund that aims to connect inclusive business practitioners (The Practitioner Hub for Inclusive Business, 2015); and a regional innovation hub born out of a partnership between the Global Centre for Food Systems Innovation at Michigan State University and the Lilongwe University of Agriculture and Natural Resources (Rubley, 2014).

REFERENCES

British Broadcasting Corporation. 2014. "'Cashgate' - Malawi's Murky Tale of Shooting and Corruption." http://www.bbc.com/news/world-africa-25912652.

———. 2015. "Malawi Profile." http://www.bbc.com/news/world-africa-13881367.

Government of Malawi. 2011. "Malawi Health Sector Strategic Plan 2011-2016." Lilonge.

———. 2014. "2014 Millennium Development Goal Report for Malawi." Lilonge.

International Monetary Fund. 2015. "World Economic Outlook Database." Washington, DC.

International Organization for Migration. 2015. "Malawi Flood Response Displacement Tracking Matrix Round II Report - April 2015." https://www.humanitarianresponse.info/fr/system/files/documents/files/01_iom_dtm_report_malawi_round_ii_20150420_0.pdf.

Jackson, Tom. 2015. "Malawi's First Incubator mHub Looks to Make Country a Tech Force in Region." *Disrupt Africa*. http://disrupt-africa.com/2015/04/malawis-first-incubator-mhub-looks-to-make-country-a-tech-force-in-region/.

Joint United Nations Programme on HIV and AIDS. 2014. "HIV and AIDS Estimate." Geneva: Joint United Nations Programme on HIV and AIDS. http://www.unaids.org/en/regionscountries/countries.

Kalinga, Owen Jato. 2015. "Malawi." *Encyclopaedia Britannica*. Britannica. http://www.britannica.com/place/Malawi.

Miller, Terry, and Anthony Kim. 2015. *2015 Index of Economic Freedom*. Washington, DC: The Heritage Foundation.

Msyamboza, Kelias P, Bagrey Ngwira, Titha Dzowela, Chimwemwe Mvula, Damson Kathyola, Anthony D Harries, and Cameron Bowie. 2011. "The Burden of Selected Chronic Non-Communicable Diseases and Their Risk Factors in Malawi: Nationwide STEPS Survey." *PLoS One* 6 (5). Public Library of Science: e20316. doi:10.1371/journal.pone.0020316.

Rubley, Abby. 2014. "GCFSI Launches Research Hub in Malawi." *MSU Today*. http://msutoday.msu.edu/news/2014/gcfsi-launches-research-hub-in-malawi/.

The Practitioner Hub for Inclusive Business. 2015. "Malawi Network (in Partnership with MICF)." http://www.inclusivebusinesshub.org/group/malawi.

UNESCO. 2014. "Mapping Research and Innovation in the Republic of Malawi." Edited by G A Lemarchand and S Schneegans. Paris: United Nations Educational, Scientific and Cultural Organization. http://unesdoc.unesco.org/images/0022/002288/228807E.pdf.

United Nations. 2015. "UNdata." http://data.un.org/.

United Nations Children's Fund. 2014. "UNICEF Data: Monitoring the Situation of Children and Women." New York: United Nations Children's Fund. http://data.unicef.org.

United Nations Development Programme. 2013. "Income Gini Coefficient." http://hdr.undp.org/en/content/income-gini-coefficient.

———. 2015. "Human Development Report 2015." New York.

World Bank. 2015a. "Malawi: Overview."

———. 2015b. "World Development Indicators." Washington, DC: World Bank. http://data.worldbank.org.

World Health Organization. 2014. "WHO Country Cooperation Strategy at a Glance: Malawi." Geneva.

———. 2015a. "Global Health Expenditure Database." http://apps.who.int/nha/database.

———. 2015b. "Global Health Observatory Data Repository." Geneva: World Health Organization. http://apps.who.int/gho/data/node.main.

———. 2015c. "Malawi: WHO Statistical Profile." Geneva: World Health Organization. http://www.who.int/gho/countries/mwi.pdf?ua=1.