

Malawi: Food Security and Ecosystem Resilience

Introduction

The Ministry of Agriculture, Irrigation and Water Development is mandated to enhance productivity in the agricultural sector through sustainable land and water resources management and in so doing ensure food security and sustainable livelihoods. By 2018, the population of Malawi was about 19 million growing at an average annual rate of 2.9 per cent as highlighted in [Table 1](#) (UNDESA, 2018). The proportion of people living in the rural areas is 83.3 per cent.

Table 1: Key indicators. Source: (World Bank, 2017) (UNDESA, 2018)

MALAWI	2018
Total population (million)	19.175
Total area (km ²)	94.0
Population density (persons/km ²)	203.3
Per capita income	

Agriculture in the Malawi Economy

Agriculture is a major part of the economy contributing 26.1 per cent of GDP in 2017 and employing 71 per cent of the total employed population of which 76.7 per cent were women in 2018 (World Bank, 2018). Malawi's land area is 94 km² and 61 per cent of this is agricultural land (see [Figure 1](#) and [Figure 2](#)) (UNDESA, 2018).

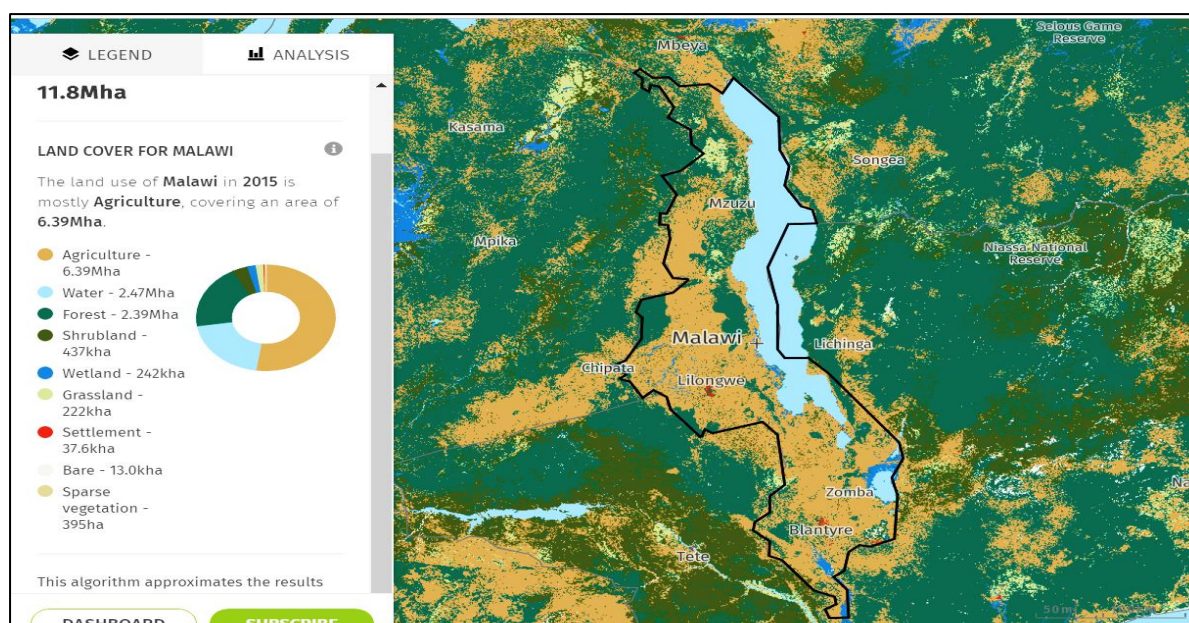


Figure 1: Land cover Kenya (2015) Data source: Global Forest Watch

Food Security Situation

Food security is a real problem aggravated by the recurring droughts. Indeed, the recent 2015-2016 El Niño caused a severe drought that resulted in the declaration of a national emergency. Recent data estimated that 3.3 million people were food insecure between October 2018 and March 2019, with the southern districts hardest hit (FAO, 2019).

Relevant SDG 2 indicators

2.1.2 Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)

2.4.1 Proportion of agricultural area under productive and sustainable agriculture

Just over a third of the population was undernourished between 2004-2006 although this reduced to 26.4 per cent between 2015 and 2017 as shown in Table 2 (SDGCA and SDSN, 2018). The Government of Malawi has put in place a policy and legal framework to try and address this problem. These include the National Nutrition Policy and Strategic Plan 2018-2022; and the Malawi Growth and Development Strategy (MGDS) III - Building a Productive, Competitive and Resilient Nation 2017.

Table 2: Food insecurity trends in Malawi (FAO, IFAD, UNICEF, WFP and WHO, 2018)

Location	Prevalence of undernourishment in the total population (%)		Prevalence of severe food insecurity in the total population (2015-2017)	Prevalence of wasting in children under 5 (2017)	Prevalence of stunting in children under 5 years of age (%)		Prevalence of overweight in children under 5 years of age (%)	
	2004-2006	2015-2017	%	%	2012	2017	2012	2017
Malawi	26.1	26.3	52.4	2.7	47.8	37.1	9.2	4.5
Eastern Africa	34.4	31.2	29.2	6.0	38.5	35.6	4.5	4.4

Africa	21.3	19.6	25.9	7.1	32.6	30.3	5.0	5.0
--------	------	------	------	-----	------	------	-----	-----

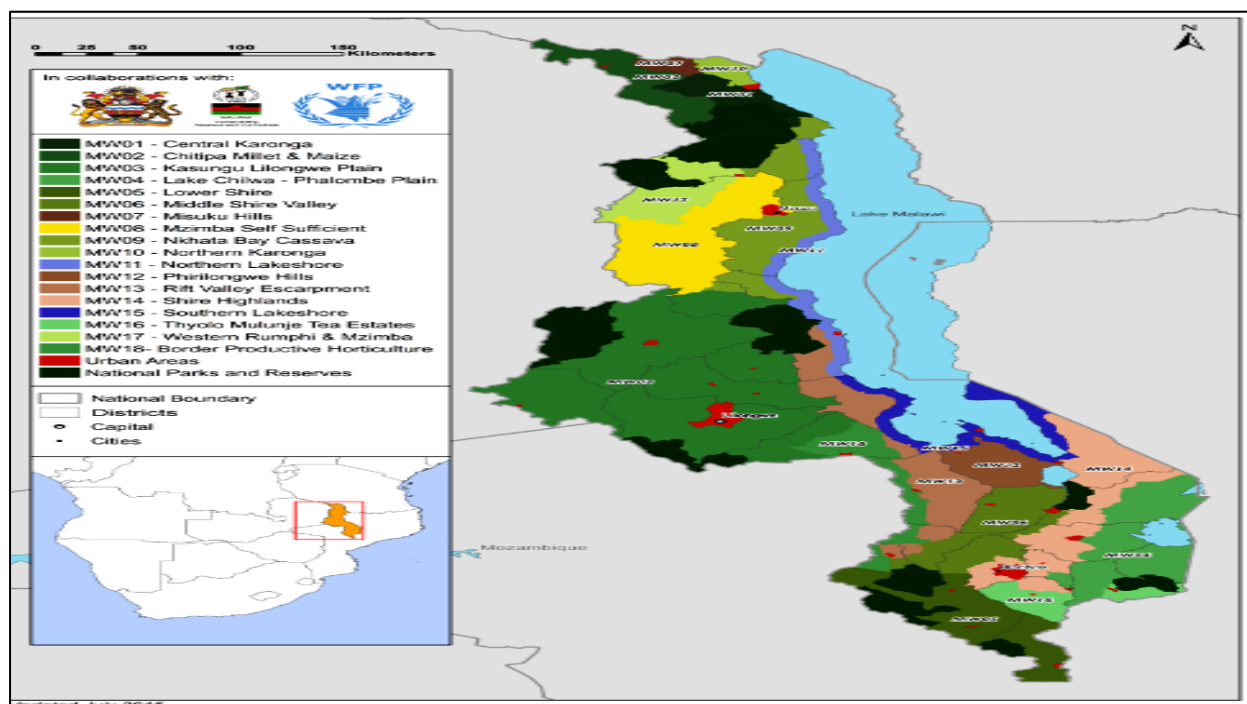


Figure 2: Malawi Livelihood zones fews.net

Ending Hunger

Genetic Diversity

Biological diversity and ecosystem services are important to maintaining the breed diversity that is required for food security. Some of the institutions involved in breed diversity and conservation include the Malawi Plant Genetic Resources Centre, Forestry Research Institute, and the National Herbarium and Botanic Gardens. The legal framework includes the Wildlife Policy Environment Policy, Forestry Policy and the National Seed Policy 2018.

The number of local breeds recorded as being kept in the country by 2018 were 14. With plants, the number is more and has been going up over the years. In 2000, 2,019 plants breeds had sufficient genetic material for reconstitution stored as shown in Figure 3. The number of local breeds at an unknown level of extinction was 9 or 69.23 per cent by 2018; while 4 local breeds are classified as 'not at risk' (UN Stats, 2019).

Relevant SDG 2 indicators

2.5.1 Number of plant and animal genetic resources for food and agriculture secured in either medium- or long-term conservation facilities

2.5.2 Proportion of local breeds classified as being at risk, not at risk or at unknown level of risk of extinction

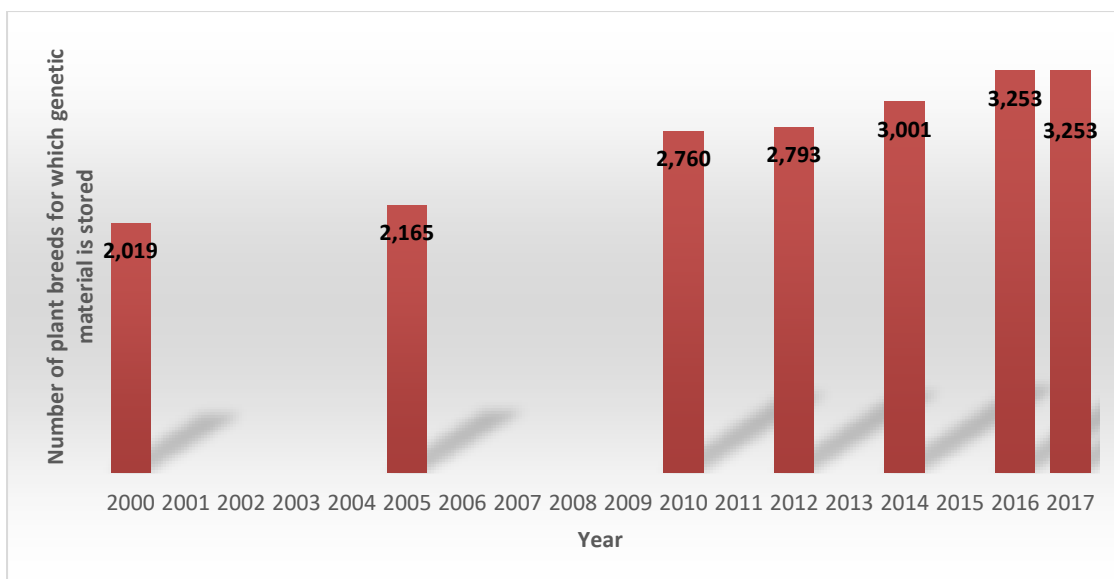


Figure 3: Plant breeds for which sufficient genetic resources are stored (number) 2000-2017 (UN Stats, 2019)

Renewable Energy

About 78 per cent of total final energy consumption in Malawi was provided by renewables in 2016 as shown in Figure 4 (UN Stats, 2019). The renewable energy sources include solar, wind and hydropower among others.

Relevant SDG 7 indicators

7.2.1 Renewable energy share in the total final energy consumption

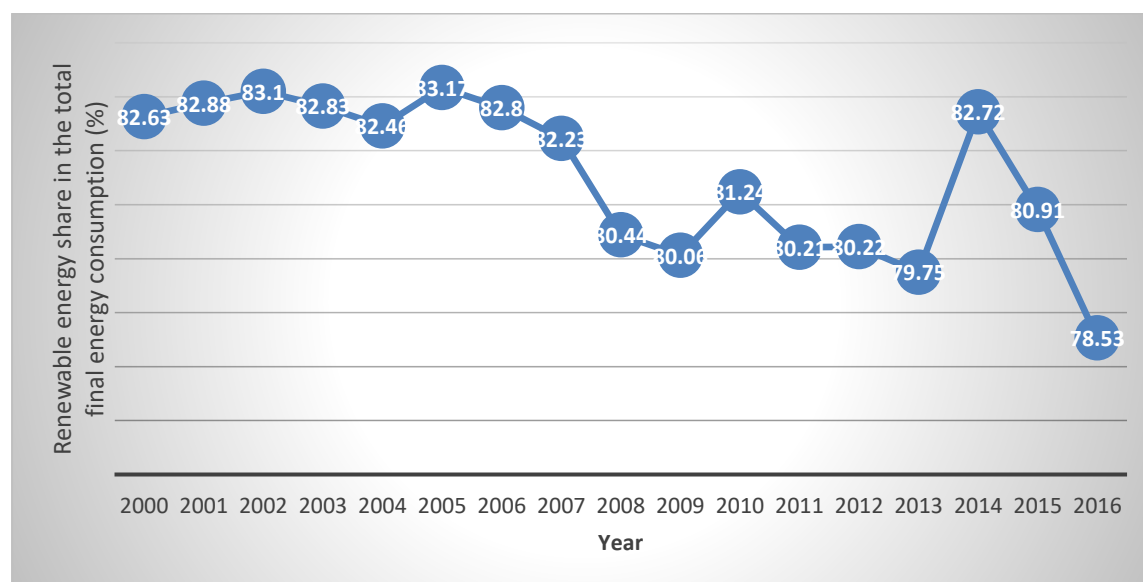


Figure 4: Trends in renewable energy share in the total final energy consumption (%) 2000-2016 (UN Stats, 2019)

Clean Water and Fisheries

Water Quality

Permanent water bodies cover 25.19 per cent of the total land area. Withdrawals as a proportion of available freshwater resources was estimated at 17.5 per cent in 2005 (above 25 per cent which is considered the threshold of initial water stress) (UN Stats, 2019).

Relevant SDG 6 indicators

- 6.3.1 Proportion of wastewater safely treated
- 6.3.2 Proportion of bodies of water with good ambient water quality
- 6.4.2 Level of water stress: freshwater withdrawal as a proportion of available freshwater resources.
- 6.6.1 Change in the extent of water-related ecosystems over time

Open defecation is a problem and although it is declining, it can still lead to water contamination with impacts on human wellbeing and food security. At the national level, 6.4 per cent of the population were practicing open defecation as shown in **Error! Reference source not found.** In addition, about 80 per cent of municipal sewage flows untreated into rivers around Blantyre implying that much of the waters are contaminated (Kasinja & Tille, 2018). The National Sanitation Policy and the Water Resources (Water Pollution Control) Regulations, 1978 provides guidance for dealing with wastewater.

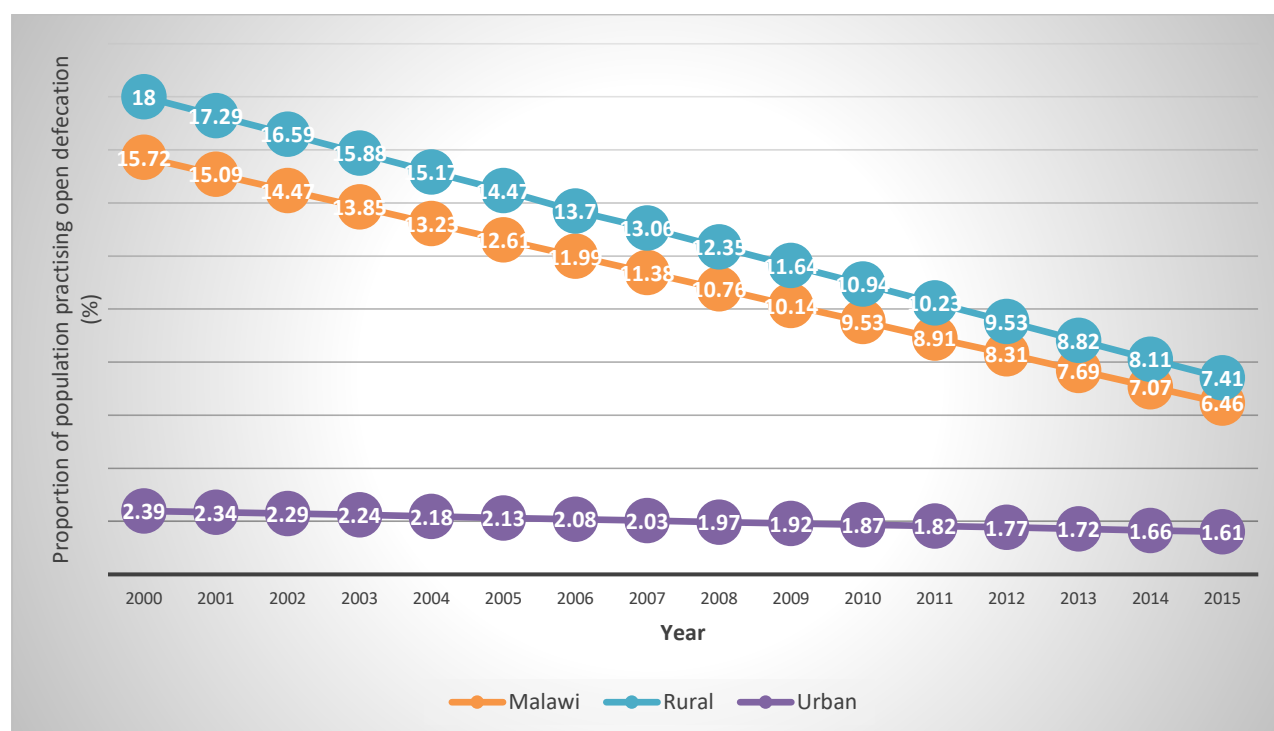


Figure 5: Trends in open defecation in Malawi 2000-2015 (UN Stats, 2019)

Sustainable Management of Fisheries

Between 2000 and 2015, total fisheries production in Malawi was 147,000 metric tonnes. Capture fisheries grew by 7.2 per cent and aquaculture by 16.1 per cent over the same time period (World Bank, 2017). The fishery sector is small-scale using both traditional and artisanal fisheries. Malawi is trying to encourage a more advanced level of artisanal fisheries through investing in improved techniques to allow the fishermen to access the offshore and deep-water species. There is a semi-industrial trawler fleet in the southern part of Lake Malawi and the percentage of fish caught by

trawling is 28.5 per cent (SDGCA and SDSN, 2018) (Breuil & Grima, Baseline Report Malawi. SmartFish Programme of the Indian Ocean Commission, Fisheries Management FAO component, 2014).

Illegal Fishing

On a scale of 1 to 5, Malawi scored a 2 in terms of putting in place measures to address illegal, unreported and unregulated fishing. Although fish biodiversity on Lake Malawi has been fairly constant over the last 20 years, the fish composition has changed due to overfishing and environmental degradation (Breuil & Grima, Baseline Report Malawi. SmartFish Programme of the Indian Ocean Commission, Fisheries Management FAO component, 2014).

Relevant SDG 14 indicators

- 14.2.1:** Proportion of national exclusive economic zones managed using ecosystem-based approaches
- 14.4.1:** Proportion of fish stocks within biologically sustainable levels
- 14.5.1:** Coverage of protected areas in relation to marine areas.
- 14.6.1:** Progress by countries in the degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing.
- 14.b.1:** Progress by countries in the degree of application of a legal/regulatory/policy/institutional framework which recognizes and protects access rights for small-scale fisheries

The sector is regulated by the Fisheries Conservation and Management Act 2012. Other relevant provisions include the Fisheries (Prohibited Methods of Fishing) Order 1984; the Fisheries (Commercial Fishing) Regulations 1984; Fisheries Conservation and Management Regulations (Regulations) 2000; and the Local Community Participation Rules (LCP Rules) 2000.

Terrestrial Ecosystems: Land, Biodiversity and Forests

Tree and Forest Cover

In 2015, a third (33.4 per cent or 3.147 million ha) of the land area was covered with forests. In 2000, forests covered 37.83 per cent of land area; and forest loss between 2000 and 2015 happened at a rate of 0.8 per cent (World Bank, 2017). Net forest area decreased by 1.1 per cent in 2010 and increased by 0.32 per in 2015 (see **Error! Reference source not found.**) (UN Stats, 2019).

Relevant SDG 15 indicators

- 15.1.1** Forest area as a proportion of total land area
- 15.1.2** Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type
- 15.2.1** Progress towards sustainable forest management
- 15.3.1** Proportion of land that is degraded over total land area

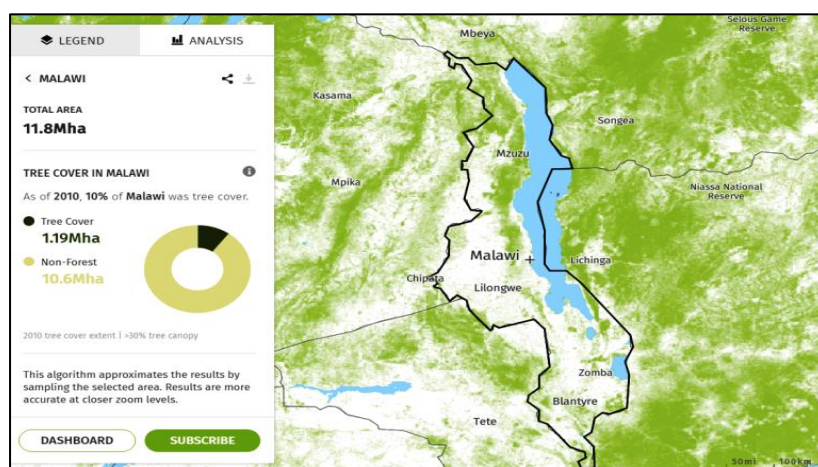


Figure 6: Malawi with a 30%+ tree canopy (2010). Data source: Global Forest Watch

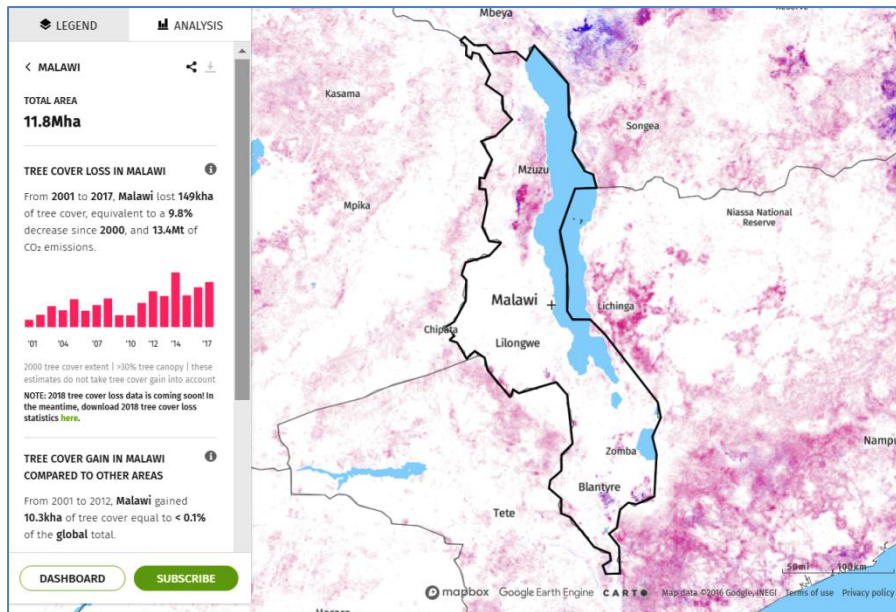


Figure 7: Tree cover loss in Malawi 2001-2017. Data source: Global Forest

Encouraging Sustainable Forest Management

The environmental value of forests as measured by above-ground biomass increased only slightly from 76.25 tonnes/ha in 2000 to 76.26 tonnes/ha in 2015 (UN Stats, 2019). The legal guidance for forests includes the Forestry Act (No. 4 of 1997) and the Forestry (Amendment) Act, 2017 (No. 5 of 2017)

Protected Areas

National data indicates that 10 mammal species, 19 birds, 36 fish and 34 species of higher plants were threatened as at 2018 (World Bank, 2017). Malawi's Red List Index, a measure of extinction risk has been steadily declining from 0.79 in 2000 to 0.77 in 2019 a clear sign of biodiversity erosion (UN Stats, 2019).



Figure 8: From left to right – Malawi with a 10%+ tree canopy cover (2010), then with hotspots (2016) and then protected areas (2018) Data source: Global Forest Watch

The proportion of freshwater biodiversity covered by protected areas was estimated at 44.73 per cent in 2018 and this has been constant since 2000. The proportion of terrestrial biodiversity covered by protected areas was estimated at 83.42 in 2018 (see Figure 8) (UN Stats, 2019).

Relevant SDG 12 indicators

12.4.2 Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment

12.5.1 National recycling rate, tons of material recycled

Emerging Environmental Challenges

Relevant SDG 13 indicators

13.2.1 Number of countries that have communicated the establishment or operationalization of an integrated policy/strategy/plan which increases their ability to adapt to the adverse impacts of climate change, and foster climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production (including a national adaptation plan, nationally determined contribution, national communication, biennial update report or other

13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula

13.3.2 Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions

Waste Production and Management

Data from 2017 indicates that municipal solid waste generation in cities in Malawi is about 0.6 kg per capita per day and e-waste generated is 1.3 kg per capita (SDGCA and SDSN, 2018). The volumes generated present a management challenge. Almost half (42 per cent) the urban households use pits in their backyard to dispose of their solid waste while 12 per cent simply dump it on the roadside creating unsightly messes and odours (Kasinja & Tille, 2018).

There have been calls to formalize the Informal Waste Pickers as a strategy to improve the whole process of waste management. The legal framework includes the Waste Management Regulations. At the international level, Malawi has ratified the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal in 1994; and the Rotterdam Convention on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade in 2009.

Climate Change

Malawi has been on the receiving end of climate change and is implementing an institutional, legal and policy framework for climate change to address some of the more urgent issues. The country has ratified the United Nations Framework Convention on Climate Change and the Kyoto Protocol.

Climate Change Management Policy 2016 and National Climate change Investment Plan 2013-2018. Malawi has not yet integrated change into the primary, secondary and tertiary levels of education.

Relevant SDG 15 indicators

15.a.1 and **15.b.1** Official development assistance and public expenditure on conservation and sustainable use of biodiversity and ecosystems.

15.c.1 and **15.7.1** Proportion of traded wildlife that was poached or illicitly trafficked

Financing natural resources management

Official development assistance has been fluctuating as shown in **Error! Reference source not found.** reaching a high of US \$67.07 million in 2010 and a low of US \$0.76 million in 2006 (UN Stats, 2019).

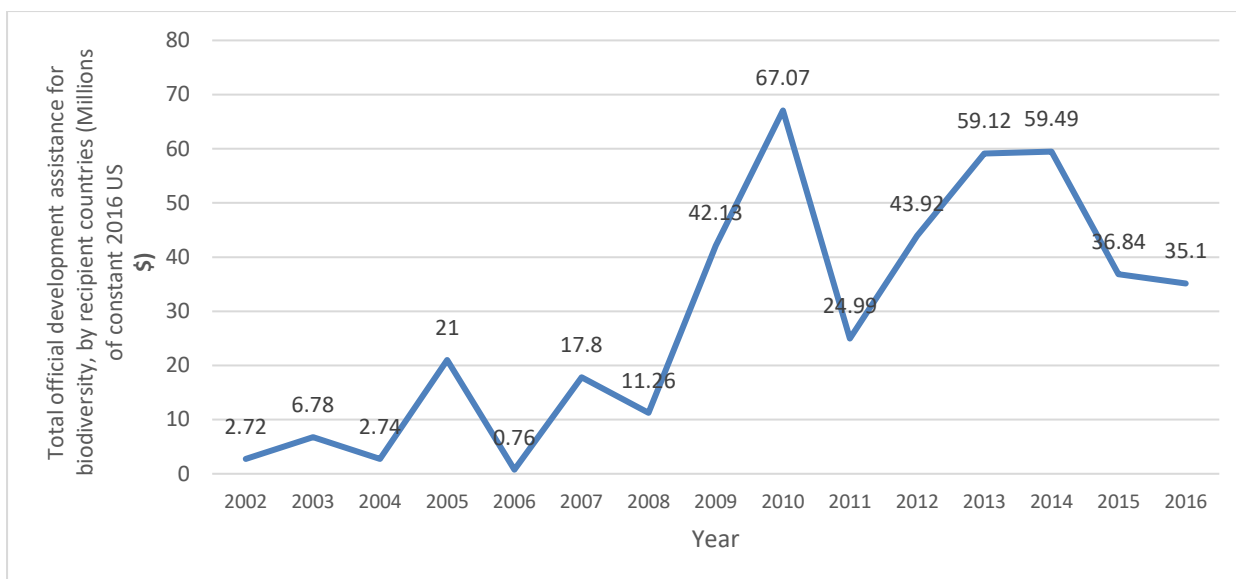


Figure 9: Total official development assistance for biodiversity (millions of constant 2016 US \$) 2002-2016 (UN Stats, 2019)

Supporting Actions to End Hunger

Sustainable Management of Mountain Ecosystems

Mountains cover 38 km² of land; and in 2018, the area gazetted as protected areas covered a total of 82 per cent of mountainous biodiversity. (UN Stats, 2019).

Relevant SDG 15 indicators

- 15.6.1** Number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits
- 15.8.1** Proportion of countries adopting relevant national legislation and adequately resourcing the prevention or control of invasive alien species
- 15.9.1** Progress towards national targets established in accordance with Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011-2020

Sustainable Management of Biodiversity

The National Biodiversity Strategy and Action Plan 2015-2020 has integrated the Aichi Biodiversity Targets. Some of the activities include addressing the issue of invasive species and plant genetic material. The National Plant Genetic Resource Centre has been collecting materials from all over the country and by 2012 held 4,613 accessions (4,097 seed and 516 vegetative) (CBD, 2019). Malawi ratified the International Treaty on Plant Genetic Resources in 2002.

Invasive species in Malawi include the *Pinus patula* (Mexican weeping pine), *Rubus ellipticus* (Himalayan raspberry), *Eichornia crassipes* (Water hyacinth) and *Pteridium aquillinum* (Bracken fern). Plans are underway to control and eradicate these species.



Rubus elipticus (Himalayan raspberry) is an invasive plant in Malawi Source: Useful Tropical Plants

Integrated Water Resources Management

On a scale of 0-100, the degree at which Integrated Water Resources Management is undertaken is 40 (MWR, n.d). The Ministry of Irrigation and Water Development has the mandate for implementing IWRM in the country; and utilizes the Integrated Water Resources Management/Water Efficiency Plan (2008–2012). The Water Resource Act includes provisions for IWRM.

Transboundary Water Resources Management

There are two shared water bodies in Malawi. These include Lake Malawi and the Shire River which are part of the bigger Zambezi River basin. The second is shared with Mozambique – the Lake Chilwa system. Malawi and Mozambique cooperate over the management of the shared Shire River, through the agreement on the establishment of a Joint Water Commission for the Shire River Basin that was signed in 2003. Malawi also signed up to the Agreement on the Establishment of the Zambezi Watercourse Commission 2004 and the Convention on the Management of Lake Malawi/Nyasa for Sustainable Development.

Relevant SDG 6 indicators

- 6.5.1 Degree of integrated water resources management implementation (0-100)
- 6.5.2 Proportion of transboundary basin area with an operational arrangement for water cooperation

Bibliography

- Breuil, C., & Grima, D. (2014). *Baseline Report Malawi. SmartFish Programme of the Indian Ocean Commission, Fisheries Management FAO component*. Ebene, Mauritius: Food and Agriculture Organisation (FAO) of the United Nations. Récupéré sur <http://www.fao.org/3/a-br797e.pdf>
- CBD. (2019, May 05). *Convention on Biological Diversity (CBD)*. Récupéré sur Malawi Country Data: <https://www.cbd.int/countries/profile/default.shtml?country=mw#measures>
- FAO. (2019). *Crop Prospects and Food Situation*. Global Information and Early Warning System on Food and Agriculture (GIEWS). Rome: Food and Agriculture Organization of the United Nations (FAO). Consulté le July 7, 2019, sur <http://www.fao.org/3/ca5327en/ca5327en.pdf>

- FAO, IFAD, UNICEF, WFP and WHO. (2018). *The State of Food Security and Nutrition in the World 2018. Building climate resilience for food security and nutrition*. Rome: Food and Agriculture Organisation of the United Nations (FAO), IFAD, UNICEF, WFP and WHO. Récupéré sur <http://www.fao.org/3/I9553EN/i9553en.pdf>
- Kasinja, C., & Tille, E. (2018). Formalization of Informal Waste Pickers' Cooperatives in Blantyre, Malawi: A Feasibility Assessment. *Sustainability*. doi:<https://doi.org/10.3390/su10041149>
- SDGCA and SDSN. (2018). *Africa SDG Index and Dashboards Report 2018. Kigali and*. Kigali and New York: The Sustainable Development Goals Center for Africa (SDGCA) and Sustainable Development Solutions Network (SDSN). Récupéré sur <http://unsdsn.org/wp-content/uploads/2018/07/AFRICA-SDGS-2018-Complete-Report-WEB.pdf>
- UN Stats. (2019). *Sustainable Development Goals*. Récupéré sur SDG Indicators: UN Global SDG Indicator Database: <https://unstats.un.org/sdgs/indicators/database/>
- UNDESA. (2018). *World Statistics Pocketbook 2018 Edition*. New York: United Nations Department of Economic and Social Affairs (UNDESA).
- World Bank. (2017). *The little green data book 2017 (English). World development indicators*. Washington, D.C.: World Bank. Récupéré sur <http://documents.worldbank.org/curated/en/239271500275879803/The-little-green-data-book-2017>
- World Bank. (2018). *World Bank Databank*. Récupéré sur World Development Indicators: <https://databank.worldbank.org/data/reports.aspx?source=world-development-indicators#>