

# Burundi: Food Security and Ecosystem Resilience

## Introduction

The vision of the Ministry of Agriculture and Livestock is to ‘*promote agricultural intensification based on the regionalization of crops for sustainable security and the fight against malnutrition*’. Sectoral policies include the National Agricultural Strategy, the National Food Security Program and the Strategy Orientation Document, a National Agricultural Investment Plan (PNIA 2012-2017) and the Burundi Vision 2025 (MAL, 2019).

Table 1: Key indicators for Burundi (World Bank, 2017) (UNDESA, 2018)

BURUNDI	2018
Total population (million)	11.22
Total area (km <sup>2</sup> )	27,830
Population density (persons/km <sup>2</sup> )	436.8
Per capita income, 2015 (US \$ in 2015)	260

## Agriculture in the Burundian Economy

Burundi had over 11 million people in 2018 and this was growing at an average annual rate of 3 per cent. About 87 per cent of the population lives in the rural areas, but the urban population is growing extremely fast at an annual rate of 5.6 per cent. Agriculture is the biggest sector and contributed 37.7 per cent to GDP in 2018, compared to 2.5 per cent from industry and 6 per cent from services. In 2018, agriculture, mostly at a subsistence level, employed 91.5 per cent of the population (UNDESA, 2018). About 79 per cent of Burundi’s total land area of 27,830 km<sup>2</sup> is agricultural land (FAO, 2016). These key indicators are highlighted in **Error! Reference source not found.**; and land cover information in **Error! Reference source not found.**.

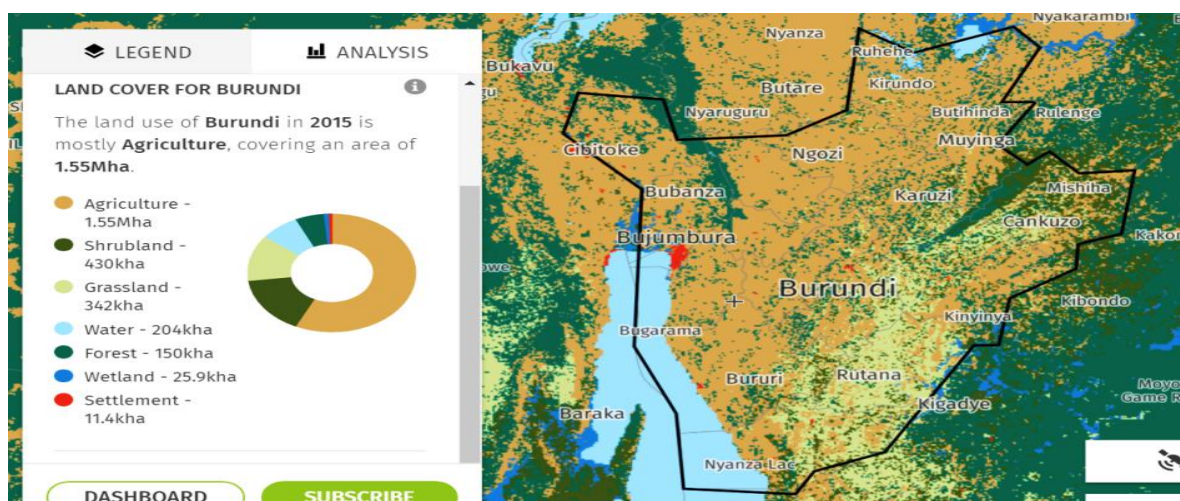


Figure 1: Land cover Burundi (2015) Data source: Global Forest Watch (<https://www.globalforestwatch.org>)

## Food Security Situation

Climate related events and civil insecurity, combined with a slowdown in the economy have contributed to food insecurity. In the westernmost parts of Cankuzo, Makama, Rutana and Ruygi provinces, floods and landslides led to crop losses and subsequent food insecurity affecting about 1.72 million people by the end of 2018 (FAO, 2019).

Data on food security is sparse, but using the prevalence of stunting as a proxy, it is a big problem. Over half the population of children less than 5 years of age is stunted and the situation did not change much between 2012 and 2017 as shown in **Error!**

**Reference source not found..** Guiding policies include the Multisectoral Strategic Plan for Food and Nutrition Security 2014-2017. Relevant laws include the Decree No. 100/047 of 05 May 2018 establishing a National Agency for Food Security Stock Management, Decree No. 100/018 on establishing, establishing, organizing and operating the East African Nutritional Sciences Institute 2018; and Decree No. 100-68 regulating the fortification of food in Burundi 2015. Further analysis of the potential for food insecurity can be gleaned from the main livelihood zones in the country as shown in **Error! Reference source not found..**

### 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

Table 2: Food insecurity trends in Burundi (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 less than 5 years of age (%)		Prevalence of overweight in children under 5 years of age (%)	
	2004-2006	2015-2017	%	%	2012	2017	2012	2017
Burundi	-	-	-	5.1	57.5	55.9	2.9	1.4

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	2004-2006	2015-2017	%	%	2012	2017	2012	2017
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

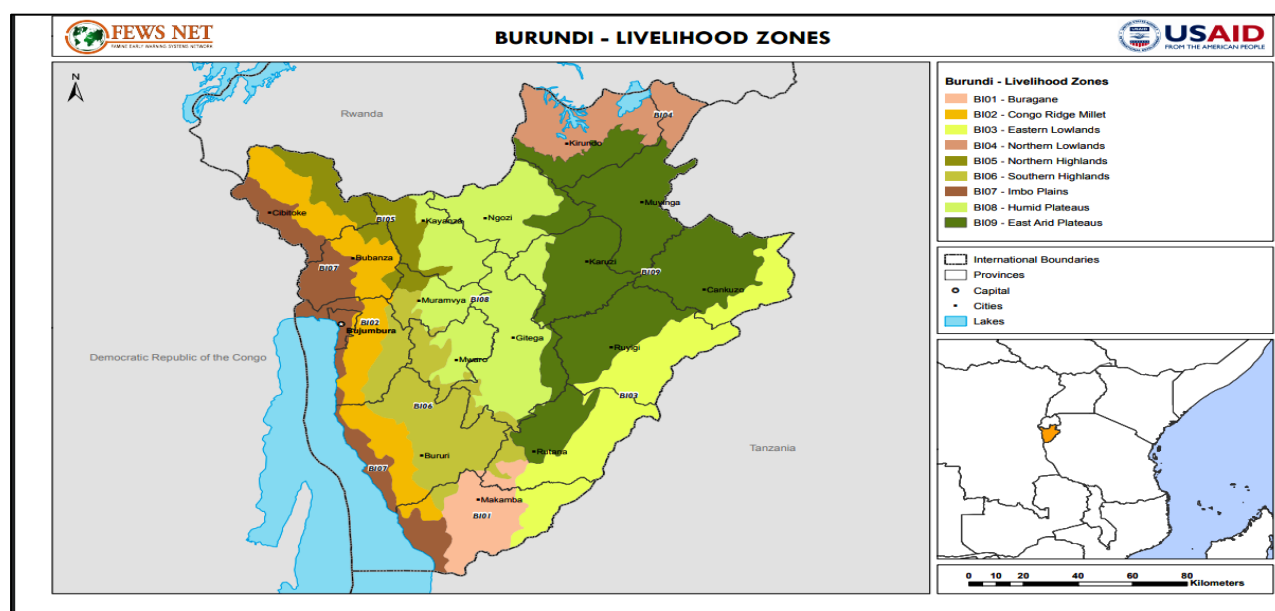


Figure 2: Burundi Livelihood zones. Fews.net

## Ending Hunger

### Genetic Diversity

The conservation and wise use of genetic and biodiversity resources is key to building and maintaining food security. Some of the policies and laws to guide against degradation of agro-biodiversity include the National Strategy and Action Plan on Biodiversity 2013-2020 which allows for the mainstreaming of biodiversity into the agriculture and livestock sectors. The country ratified the International Treaty on Plant Genetic Resources in 2006.

#### 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

By 2018, there were 7 local breeds kept in the country, but no genetic materials for these breeds were stored in the country (UN Stats, 2019). Three local breeds were at an unknown level of extinction by 2018; and 4 breeds were stated to be 'not at risk' (UN Stats, 2019).

**Relevant SDG 7 indicators**  
**7.2.1** Renewable energy share in the total final energy consumption

## Renewable Energy

Burundi's renewable energy share in 2016 was estimated at 89.22 per cent of the total final energy consumption and it has been declining over the years as shown in Figure 3 (UN Stats, 2019). Future electricity generation intends to focus on renewables specifically hydroelectric power stations.

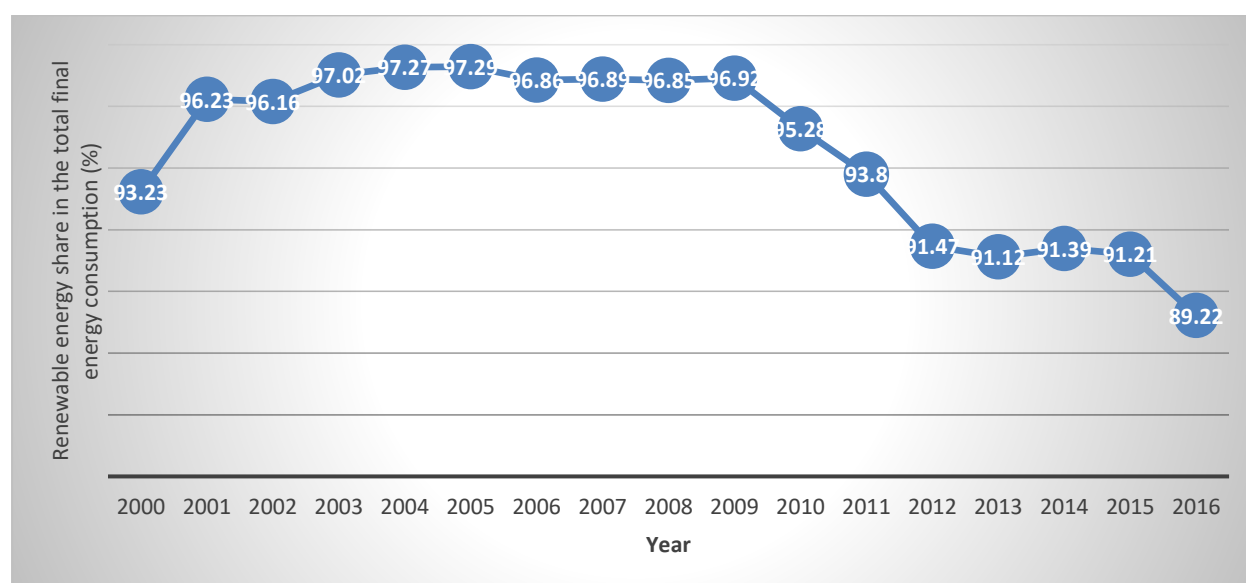


Figure 3: Trends in renewable energy share in the total final energy consumption (%) 2000-2016 (UN Stats, 2019)

## Clean Water and the Marine Environment

### Water Quality

By 2016, permanent water bodies covered 1,955 km<sup>2</sup> or 7.61 per cent of the total land area. The level of water stress (withdrawals as a proportion of available freshwater resources) in 2000 was estimated at 10.5 per cent (above 25 per cent which is considered the threshold of initial water stress) (UN Stats, 2019).

Data on wastewater management is scarce. However, the trends in open defecation show that the national figure is quite low: at 3.13 per cent in 2015 (UN Stats, 2019). This is shown in **Error! Reference source not found..** The legal framework includes Decree No. 100-189 of 2014 laying down modalities of determination and installation of the perimeters for the protection of the catchments of water intended for human consumption.

**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

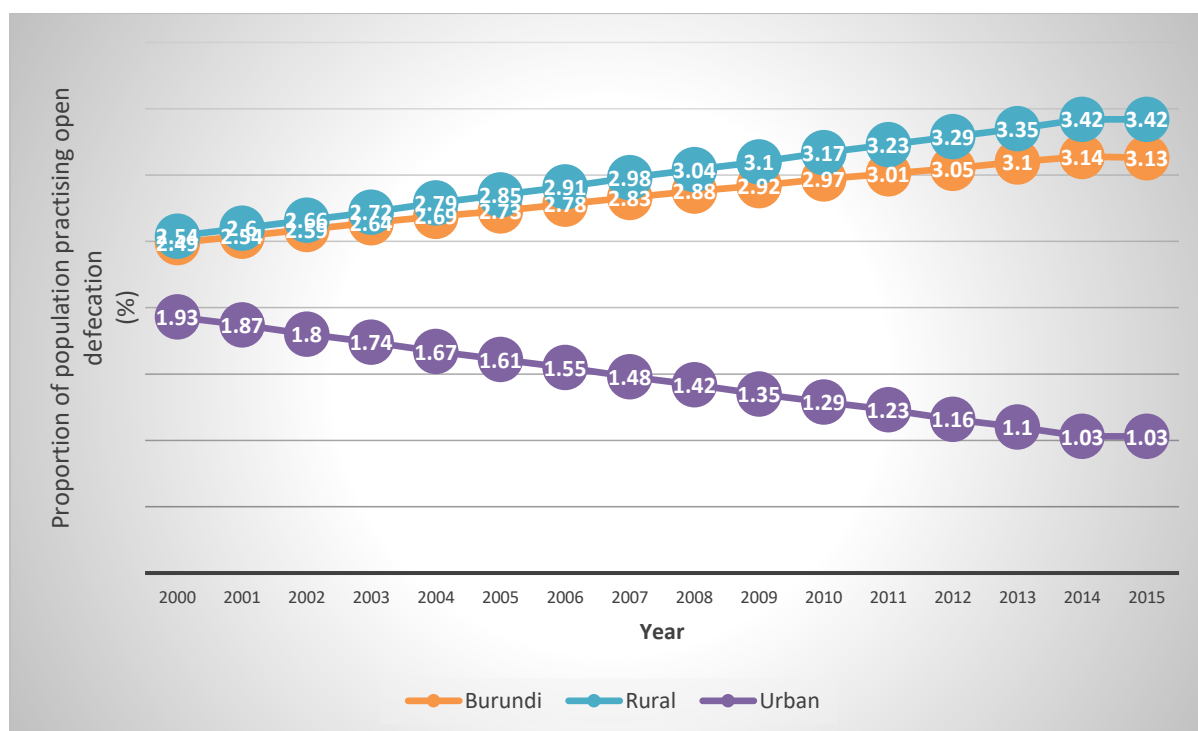


Figure 4: Trends in open defecation in Burundi 2000-2015 (UN Stats, 2019)

### Sustainable Management of Fisheries

The fisheries sector is primarily artisanal and not very developed, but there is some semi-industrial fishing as well. The main aim of the sector is to increase fish supply in support of food security. Fish accounted for 19.7 per cent of total animal protein intake in Burundi in 2014 (Breuil & Grima, 2014d).

#### 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

In 2017, total fisheries production was at 21.4 metric tonnes. Between 2000 and 2015, capture fisheries sector grew by 1.0 per cent while the growth in aquaculture averaged 24.4 per cent over the same time period (World Bank, 2017). Law No. 1/017 of 30 November 2016 on the organization of fisheries and aquaculture in Burundi is the guiding law for fisheries. Other relevant guidance is provided by the National Strategy for Aquaculture Development 2010.

### Illegal Fishing

Ninety per cent of Burundi's fish production comes from the northeastern part of Lake Tanganyika. But there are signs of degradation, and illegal fishing has led to reduced catches and in some areas the collapse of the fishery on the lake (Breuil & Grima, 2014d). Burundi has signed up to the Convention on the Sustainable Management of Lake Tanganyika as a means of sustainably utilizing the lake and its resources.



## Terrestrial Ecosystems: Land, Biodiversity and Forests

### Tree and Forest Cover

Trees and forests in Burundi in 2015 covered an estimated 10.74 per cent of the total land cover or 276,000 ha (World Bank, 2017). Between 2000 and 2015 deforestation occurred at an average annual rate of 2.2 per cent. But forest cover is actually on the increase as highlighted in Table 3. The legal framework to address forest loss includes Decree No. 100/0142 establishing, assigning, organizing and operating the Steering Committee of the National Reforestation Project "EWE BURUNDI URAMBAYE" 2018. Trends in tree cover and loss are shown in Figures 5 and 6.

#### 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

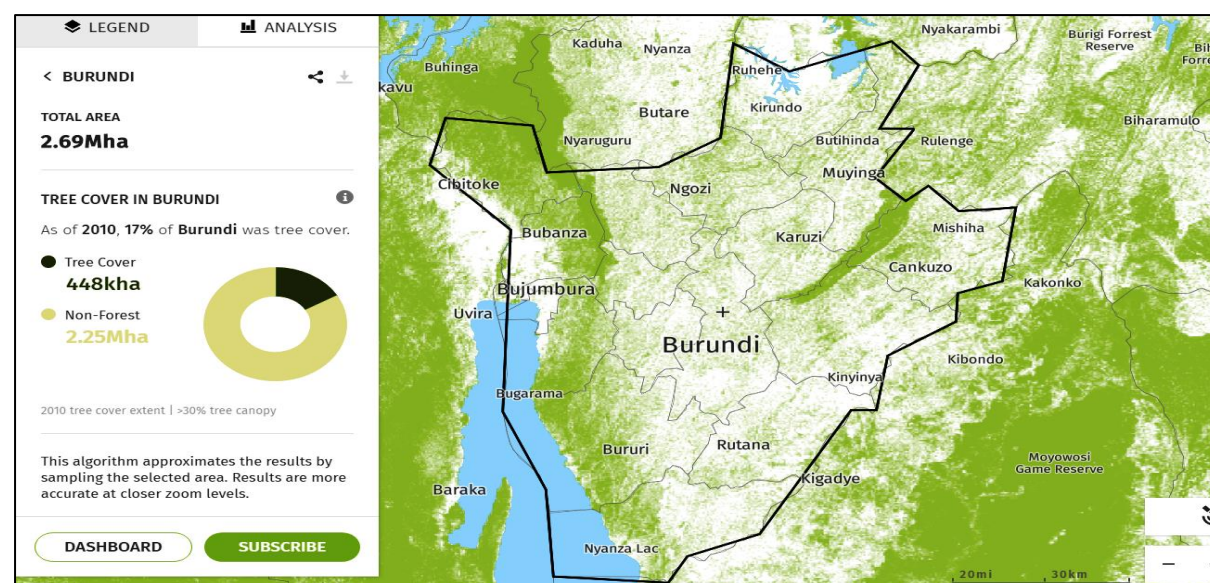
**15.3.1** Proportion of land that is degraded over total land area

**15.5.1** Red List Index

**Table 3: Forest area as a proportion of total land area 2000-2015**

Measure	2000	2005	2010	2015
'000 ha	198	181	253	276
%	7.71	7.04	9.85	10.74

(UN Stats, 2019)



**Figure 5: Burundi with a 30%+ tree canopy (2010). Data source: Global Forest Watch**

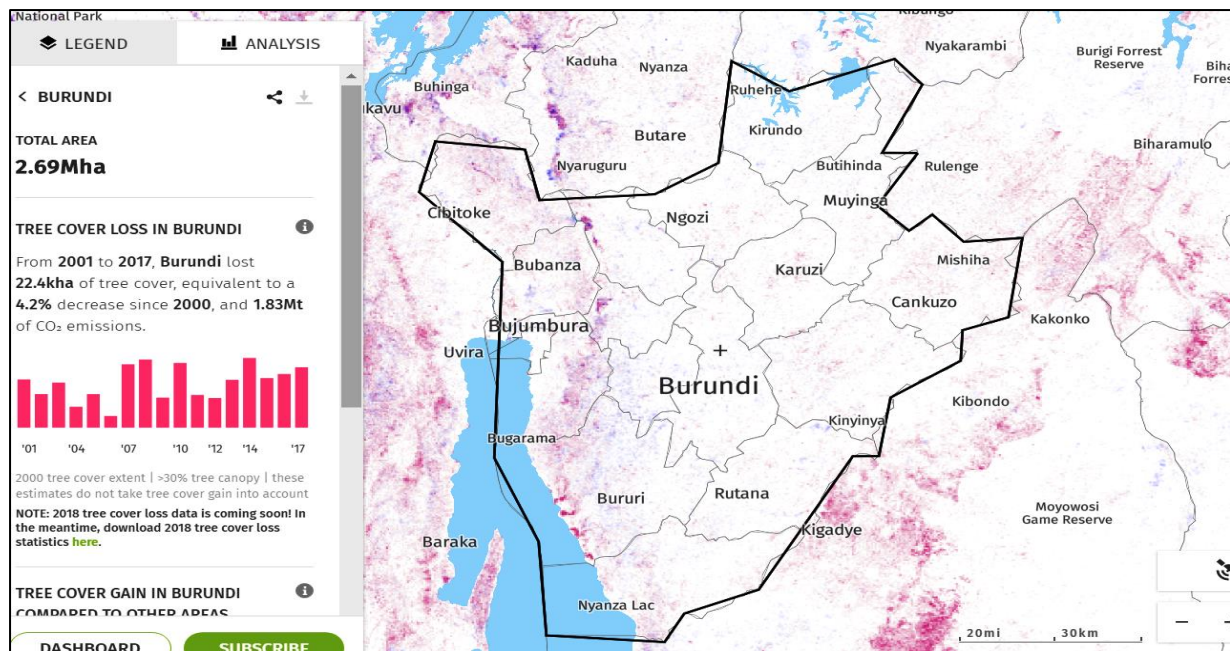


Figure 6: Tree cover loss in Burundi 2001-2017. (Data source: Global Forest Watch)

### Encouraging Sustainable Forest Management

The environmental value of forests as measured by above-ground biomass has been growing from 159.9 tonnes/ha in 2000 to 166.57 in 2005, to 167 in 2010, before declining back to 166.78 tonnes/ha in 2015 (UN Stats, 2019). The main legal guidance for this sector is the Forest Code Law No. 1/07 2016 and Decree Law 1/30 establishing a reforestation area of the State 1982 among others.

### Protected Areas

The IUCN Red List of Threatened Species index is a measure of extinction risk ranging from 0 to 1. Burundi's Red List Index has been relatively stable fluctuating between 0.92 in 2000 and 0.94 in 2019 (UN Stats, 2019). This implies that most species are not expected to become extinct in the near future. Country data indicates that 14 mammal species, 15 birds, 17 fish and 89 species of higher plants are threatened (World Bank, 2017).



The Grey parrot *Psittacus erithacus* is endangered in Burundi. Photo credit: © Rob. CC BY-NC 2.0.

The proportion of freshwater biodiversity covered by protected areas was estimated at 81.38 per cent in 2018 but this has increased from 76.29 in 2000. The proportion of terrestrial biodiversity covered by protected areas was estimated at 67.31 in 2018, which was an increase from 64.41 in 2000 (UN Stats, 2019). **Error! Reference source not found.** highlights tree cover, conservation hotspots and protected areas.



Figure 7: From left to right – Burundi with a 10%+ tree canopy cover (2010), then with hotspots (2016) and then protected areas (2018) Data source: Global Forest Watch

## Emerging Environmental Challenges

### Waste Production and Management

Data from 2017 indicates that municipal solid waste generation in cities in Burundi is about 0.6 kg per capita per day and e-waste generated is 0.2 kg per capita (SDGCA and SDSN, 2018). Medical



waste is also a big problem with 92.8 per cent (15,736.4 tonnes) of solid waste from health centres being disposed of in an unsafe manner (Niyongaboa, Jang , Kang, & Sung, 2019).

The Environment Code 2000 promises to maintain a clean and healthy environment for the people. At the international level, Burundi has ratified the Basel on the Control of Transboundary Movements of Hazardous Wastes and their Disposal in 1997; the Stockholm Convention on Persistent Organic Pollutants in 2002; and the Rotterdam Convention on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade in 2004.

#### 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

## Climate Change

The impacts of climate change are being felt in the agriculture-sensitive sectors such as water, energy, forests and human health through severe events such as floods and drought. For instance, the occurrence of drought led to a 35 per cent mortality rate in livestock and widespread crop failure between 1998 and 2005 (DSU, 2015). The country is trying to prepare adaptation and mitigation actions against climate change and ratified the UNFCCC in 1997 and the Kyoto Protocol in 2001. The Burundi Geographic Institute is the institution with the mandate for climate change.

#### 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

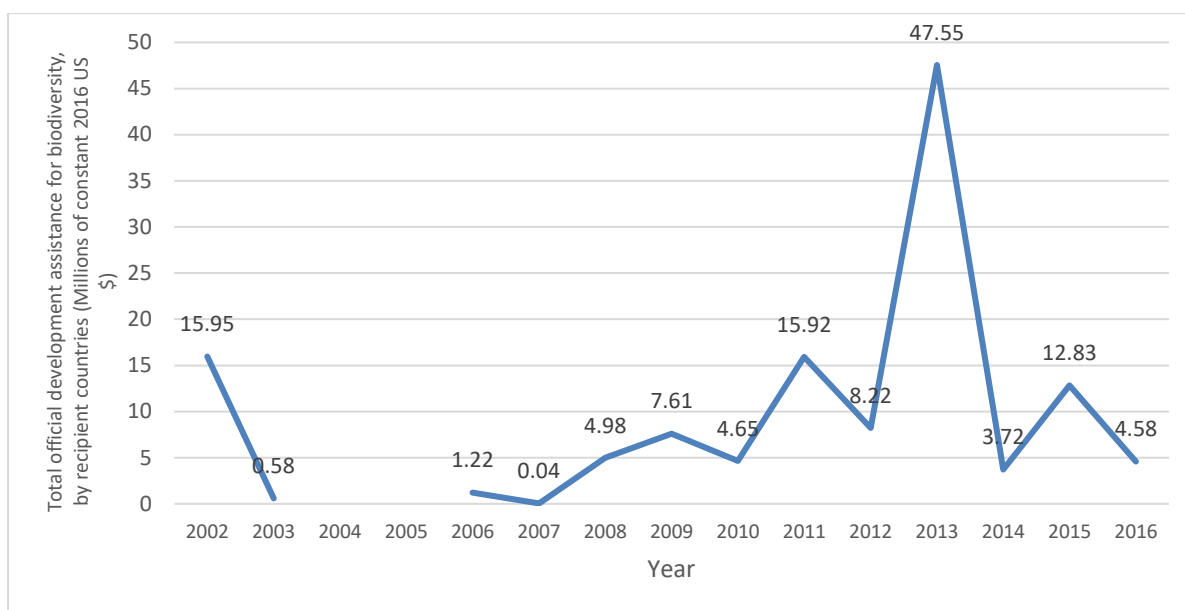
A National communication strategy for climate change adaptation and early warning of extreme weather events was prepared in 2014. Other documentation includes the National Adaptation Plan of Action 2007, the Intended Nationally Determined Contribution 2015 and the National Adaptation Program of Action for Climate Change among others.

#### 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 reaching a high of US \$47.55 in 2013 as shown in Figure 8 (UN Stats, 2019).



**Figure 8: 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 18 km<sup>2</sup> of land area in Burundi. Gazetted areas for the protection of mountainous biodiversity covered 79.1 per cent in 2000 increasing to 83.2 per cent in 2018 (UN Stats, 2019).

#### Relevant SDG 15 indicators

**15.4.1** Coverage by protected areas of important sites for mountain biodiversity

### Sustainable Management of Biodiversity

Deforestation, water pollution, climate change and the introduction of invasive alien species are some of the threats to biodiversity. According to the Global Invasive Species Database, there are about 18 alien invasive species in Burundi including some common ones such as *Mimosa diplotricha*, *Acacia* species, *Eichhornia crassipes* and *Lantana camara*.

#### 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

Some of the policies to address these issues include the Plan for the Integration of Biodiversity in the Agriculture and Livestock Sector, Strategic Plan for Investment and Mobilization of Financial Resources in the Biodiversity Field, 2013-2020 and the National Strategy and Action Plan on Biodiversity, 2013-2020. Despite the existence of this guidance, implementation remains weak due to financial and capacity constraints and lack of applying modern methodologies such as public participation, the ecosystems approach and aspects related to access and benefit-sharing (CBD, 2019). The country ratified the Convention on Biological Diversity in 1997, and acceded to the Cartagena Protocol and Nagoya Protocol on Access and Benefit Sharing in 2008 and 2014 respectively.

## Integrated Water Resources Management

On a scale of 0-100, the degree at which Integrated Water Resources Management is undertaken is 32 (MWR, n.d). Although the Water Code 2012 is based on IWRM principles, the planning was not based on the catchment, as a planning unit, but on a more centralized methodology. Other relevant policies and laws include the National Water Policy 2009, the National Water Strategy 2012, and Strategic Action Plan for Integrated Water Resources Management. IWRM issues in Burundi are handled by the Ministry of Water, Environment, Land Management and Urban Planning.

## Transboundary Water Resources Management

Burundi is located within the Nile Basin and the Congo basin and is a member of the transboundary organizations for their management. The International Commission of the Congo-Oubangui-Sangha Basin has Cameroun, Central African Republic, Congo, Democratic Republic of Congo as its member countries. Burundi is also a member of the 10-country Nile Basin Initiative.

### 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

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