



Ministry of Foreign Affairs

Climate Change Profile

Burundi

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Introduction

This climate change profile is designed to help integrate climate actions into development activities. It complements the publication 'Climate-smart = Future-Proof! – Guidelines for Integrating climate-smart actions into development policies and activities' and provides answers to some of the questions that are raised in the step-by-step approach in these guidelines.

The current and expected effects of climate change differ locally, nationally and regionally. The impacts of climate change effects on livelihoods, food and water security, ecosystems, infrastructure etc. differ per country and region as well as community and individual, with gender a particularly important vulnerability factor. This profile aims to give insight in the climate change effects and impacts in Burundi, with particular attention for food security and water. It also sheds light on the policies, priorities and commitments of the government in responding to climate change and important climate-relevant activities that are being implemented, including activities being internationally financed.

Summary

Burundi is a small, landlocked country with abundant natural resources, especially minerals and hydropower potential, but years of conflict have severely damaged its economic structure and contributed to widespread poverty^{1,2}. Agriculture (mainly rain-fed) is its primary economic sector, employing 90% of its inhabitants³. The country is densely populated, has a high population growth, and yet only 36% of the country is arable⁴. To realise its food security objectives, it must boost its agricultural productivity, which is the lowest in the region. The projected impact of climate change will further threaten food security and water availability. The risks are highest in the north and northeast of the country which are already vulnerable to rainfall shortages and in some zones soil erosion, and in the western Imbo plains which experience both rainfall shortages and floods (see [Map 1](#)). Food security risks are highest during the 'long dry season', which has increasingly extended during past decades (May-September) and will be getting drier and hotter due to climate change. Extreme floods and droughts are estimated to result in a yield

decline of 5-25% in coming decades⁵ and reduce long-term growth by 2.4% of GDP per year⁶.

Overall ranking

Globally Burundi has the lowest per capita GHG emissions, ranking 188 out of 188 countries and contributing only 0.01% to global emissions. However, it is highly vulnerable to global climate change. Burundi ranks 171 out of 181 countries in the ND-GAIN index⁷ (2016) for climate vulnerability. It is the 14th most vulnerable country and is the 17th least ready country – meaning that it is extremely vulnerable to, yet very unready to combat climate change effects. *Vulnerability* measures the country's exposure, sensitivity, and ability to cope with the negative effects of climate change by considering vulnerability in six life-supporting sectors: food, water, ecosystem service, health, human habitat and infrastructure. *Readiness* measures a country's ability to leverage investments and convert them to adaptation actions by considering economic, governance and social readiness.

Biophysical vulnerability

Current climate. Annual **rainfall** and average **temperature** differ per location and per season. Lowlands of the Imbo zone and the Ruzizi Plain in the west and northeast receive least rainfall (below 900 mm/year), while Imbo is also Burundi's warmest zone (23-25 °C). Highlands in the Congo-Nile watershed receive most rainfall (over 1600 mm/year) and are much colder (16-18 °C)⁸. Total rainfall and average temperature in the other parts of the country are between these extremes. Four seasons are distinguished:

- the long-wet season (February–May, 300-700 mm);
 - the long dry season (June–August, below 50 mm);
 - the short-wet season (September–December, 300-750 mm);
 - the short dry season (mid-January to mid-February, 300-600 mm; lower rainfall in the west and northeast)⁹.
- See [Map 2](#) for information on the length of the seasons per area.

¹ NABC (2013): *Burundi Business Fact Sheet*

² World Bank Climate Change Knowledge Portal, Burundi http://sdwebx.worldbank.org/climateportal/countryprofile/home.cfm?page=country_profile&CCCode=BDI

³ Baramburiye, J.; Kyotalimye, M.; Thomas, T.S.; Waithaka, M. (2013): Chapter 3: Burundi. In: IFPRI (2013): *East African Agriculture and Climate Change*. <http://www.ifpri.org/sites/default/files/publications/r1181cho9.pdf>

⁴ Baramburiye et al. (2013)

⁵ Baramburiye et al. (2013)

⁶ DFID (2011): The economic impacts of climate change in Burundi. <http://weadapt.org/knowledge-base/economics-of-adaptation/economics-of-adaptation-burundi>

⁷ The ND-GAIN index summarizes a country's vulnerability to climate change and other global challenges in combination with readiness to improve resilience. <http://index.gain.org/country/burundi>

⁸ Ministry for Land Management, Tourism and Environment (2007): National Adaptation Plan of Action (NAPA). <http://unfccc.int/resource/docs/napa/bdi01e.pdf>

⁹ DFID (2009): Economic Impacts of Climate Change: Kenya, Rwanda, Burundi – 1. Burundi. <http://static.weadapt.org/placemarks/files/790/506054d92b52bburundi-download.pdf>

Burundi has a history of **extreme events** that are considered climate-related. Historically, various zones experienced frequent famines and destructive hailstorms. The regions that are struck hardest by such events are (see [Map 1](#)):

- B101 (Buragane): droughts and erosion¹⁰;
- B103 (eastern depressions) north, B104 (northern depressions) and B109 (dry eastern plateaus) north:
 - frequent and severe droughts and famines (several per decade) – in B104 combined with regression of lake levels;
 - since 1999, frequent violent rains, causing erosion, combined with thunder and lightning.
- B107 (Imbo plains) north:
 - frequent excessive rains, causing floods and occasionally significant increases in the water level of Lake Tanganyika;
 - frequent rainfall shortages.

Nationwide, Burundi has alternatively experienced severe droughts, resulting in crop failure and a 35% livestock mortality (1998-2005) and severe floods, with similar effects (2006-2007). Such events have been estimated to result in a loss of 5-17% GDP per event¹¹.

Current trends. Changes in the duration of wet and dry seasons have recently been observed. Total precipitation has declined, the long-wet season ends sooner (often in April) while the short-wet season starts later (in October)¹². This means that the 'long dry season' is further prolonged and can now be considered to last from May to September. Moreover, an increase in average temperature of ca. 0.8°C has been observed between 1930 and 2000¹³. This intensification of dry and wet seasons results in more severe droughts and floods.

Climate change. Projections for future changes in temperature due to climate change estimate an increase of 0.4°C per decade¹⁴ and a 1.9°C increase by 2050¹⁵. Mean annual rainfall is projected to increase over Burundi by mid and late 21st century. By 2050, rainfall patterns are likely to be altered such that there will essentially be two six-month seasons, one rainy season lasting from November to April and a dry season covering May to October¹⁶.

Projections suggest the following¹⁷:

- A reduction in precipitation is expected for May (end of rainy season) and October (beginning of rainy season).
- Most models project there will be a slight increase in days with 'heavy' rain by 2100.
- An increase of drought is expected in the northern part of the country that will cause a decrease in water levels in the northern lakes.
- Floods are expected to increase in frequency and magnitude in the low-lying areas (e.g. Imbo floodplain).
- Models project an increase in the number of 'hot' days per year for 2046-2065 and 2081-2100 under the low and high emissions scenarios.
- Droughts are expected to become more intense and more frequent, occurring between 40 and 60% of the time.

These projections imply that the long dry season is not only being prolonged as a consequence of climate change, but also receives less rainfall and faces the most significant temperature increase resulting in acute problems for food security and water availability. In addition to losses in agricultural production resulting from the absence of the short rainy season and harnessing of wetlands during the long dry season, pastoral vegetation, the quality and quantity of fodder, the duration of the season of vegetable growth, the animal productivity and water quality are also likely to be affected as climate change progresses.

The northern and eastern provinces, that already suffer from frequent droughts, are likely to see a decrease in annual precipitation, and the projected increases in total rainfall (of 200 mm annually) or in rainfall intensity are not only likely as noted above to cause floods in the western Imbo plains but also erosion in the southern zone and central plateau¹⁸. See also the attached maps for information on changes in precipitation ([Map 3](#)), erosion vulnerability ([Map 4](#)) and drought vulnerability ([Map 5](#)).

Changes in rainfall and temperature will influence both **food security** and **water availability**:

- Food security in Burundi is already extremely fragile: 61% of the country's households risk food insecurity at some point during the year. Heavier rainfall is expected to result in floods that damage crops, soil and infrastructure, while it can also increase the presence of pests or diseases that affect food crops and livestock. Increased temperatures will result in bush fires and increased water consumption/requirements; the latter especially since a temperature increase in Burundi's tropical humid climate will result in high evapotranspiration rates¹⁹. Simultaneously, prolonged

¹⁰ FEWS NET and USAID (2009)

¹¹ Baramburiye et al. (2013)

¹² Baramburiye et al. (2013)

¹³ DFID (2009)

¹⁴ Ministry for Land Management, Tourism and Environment (2007), in Baramburiye et al. (2013)

¹⁵ Climate Change Knowledge Portal. Available via: http://sdwebx.worldbank.org/climateportal/countryprofile/home.cfm?page=country_profile&CCCode=BDI&ThisTab=ClimateFuture

¹⁶ African Development Bank (2017). <https://www.afdb.org/en/projects-and-operations/selected-projects/relevant-information-and-community-involvement-key-to-helping-burundi-adapt-to-climate-change-126/>

¹⁷ World Bank Climate Change Knowledge Portal, Burundi.

http://sdwebx.worldbank.org/climateportal/countryprofile/home.cfm?page=country_profile&CCCode=BDI

¹⁸ DFID (2011); FEWS NET and USAID (2009)

¹⁹ Baramburiye et al. (2013)

periods of drought will lead to lower water levels and therefore decreased crop and livestock productivity, as well as increased livestock mortality²⁰.

- Although Nile and Congo hydrological basins run through the country water availability for agricultural activities is vulnerable due to climatic conditions (especially space-time distribution of rainfall²¹) and will be influenced by the decrease of Lake Tanganyika's water level, which is already resulting in desertification of the area and salinization problems in the Ruzizi Plain. Water quality of river and lake systems is decreasing due to increased temperature and sediment load. In the long term though, rainfall peaks may result in an increase of ca. 40% in the average flows of the Ruzizi and Ruvubu rivers between 2000 and 2050²². This poses challenges both in terms of protecting the country against extreme rainfall events and in using such peak rainfalls to compensate for decreased water availability elsewhere in the country.

Socio-economic vulnerability

Key facts:

GDP (PPP) per capita (2016) ²³ :	USD 778
Population (July 2017) ²⁴ :	10,864,245
Projected population (2050) ²⁵ :	25,762,000
Population density per km ² (2016) ²⁶ :	410
Human Development Index (2016) ²⁷ :	184 out of 188 countries
Corruption Perceptions Index (2016) ²⁸ :	159 out of 176 countries
Gender Inequality Index (2016) ²⁹ :	108 out of 188 countries
Adult literacy (2015) ³⁰ :	85.6 % (male 88.2%; female 83.1%)

As a result of its economy, poverty, high population growth, high population density, conflict, gender inequalities and relatively low levels of education, Burundi is very vulnerable to the biophysical impact of climate change. The country and its people are strongly dependent on climate sensitive economic sectors such as agriculture and animal husbandry. Agriculture contributes 39.2% to the country's GDP, occupying almost 94% of the working population³¹. Agriculture exports (coffee, tea, cotton) provide all but a small percentage of export revenues³². The transport system in Burundi is poor, due to a limited feeder road network, hilly terrains and no direct access to the sea. Only an estimated 5% of population have access to electricity. Since its political crisis in 2015, an estimated 500,000 people have fled Burundi with tens of thousands internally displaced by conflict³³ and dependent on humanitarian assistance.

Burundi's annual population growth, 3.1%³⁴, is among the highest in the world. The country's population is projected to more than double by 2050. With an average density of more than 400 people per square kilometre, Burundi is the second most densely populated country in Sub-Saharan Africa. Population densities vary across the country³⁵. In recent years prior to the current conflict and instability there has been a surge in the rural–urban exodus in response to widespread poverty in rural areas. The eastern part of the country has the lowest density, while population densities of 500–2,000 inhabitants per square kilometre occur in the capital, Bujumbura, and the main cities, such as Ngozi and Kayanza in the north, Gitega in the midlands, and Rumonge in the south³⁶.

Ranking in the bottom five countries of the Human Development Index, poverty is widespread, with 90–95% of the population living on less than USD 2 per day, particularly in rural areas. Burundi is considered the world's hungriest country with almost 40% of its country in need of food³⁷. Most rural households have less than 0.5 hectares of farmland, due to the combination of high population growth with a land tenure system that favours fragmentation of plots among siblings³⁸. Rural households cope by expanding into environmental protection areas, cultivating on steep slopes without recourse to sustainable practices for highlands, and draining wetlands for

²⁰ Ministry for Land Management, Tourism and Environment (2007), in Baramburiye et al. (2013)

²¹ World Bank Climate Change Knowledge Portal, Burundi http://sdwebx.worldbank.org/climateportal/countryprofile/home.cfm?page=country_profile&CCode=BDI

²² Ministry for Land Management, Tourism and Environment (2007), in Baramburiye et al. (2013)

²³ World Bank Data – GDP per capita, PPP. <https://data.worldbank.org/indicator/EN.POP.DNST>

²⁴ World Population Review – Burundi. <http://worldpopulationreview.com/countries/burundi-population/>

²⁵ UNDESA (2017): *World Population Prospects: The 2017 Revision, Key Findings and Advance Tables*. Working Paper No. ESA/P/WP/248. https://esa.un.org/unpd/wpp/Publications/Files/WPP2017_KeyFindings.pdf

²⁶ World Bank Data – Population density. <http://data.worldbank.org/indicator/EN.POP.DNST>

²⁷ UNDP (2017). Human Development Report 2016: Human Development for Everyone. Table 1. <http://hdr.undp.org/en/content/human-development-index-hdi>

²⁸ Transparency International (2017) CPI Index https://www.transparency.org/whatwedo/publication/corruption_perceptions_index_2016

²⁹ UNDP (2017). Human Development Report 2016. Table 5. <http://hdr.undp.org/en/content/human-development-index->

³⁰ CIA World Factbook (2015), available via <https://www.cia.gov/library/publications/the-world-factbook/geos/by.html>

³¹ CIA World Factbook (2015). Available via <https://www.cia.gov/library/publications/the-world-factbook/geos/by.html>

³² Burundi Ministry for Land Management, Tourism and Environment (2007), in Baramburiye et al. (2013)

³³ IRC. Burundi. <https://www.rescue-uk.org/country/burundi> downloaded Dec 12, 2017.

³⁴ World Bank Data – Population growth (2016) <http://data.worldbank.org/indicator/SP.POP.GROW/countries>

³⁵ Burundi Ministry of Finance, 2007 in Baramburiye et al. (2013)

³⁶ Baramburiye et al. (2013)

³⁷ World Population Review – Burundi. <http://worldpopulationreview.com/countries/burundi-population/>

³⁸ Burundi Ministry of Finance, 2007 in Baramburiye et al. (2013)

agricultural use. This further worsens land degradation and soil erosion in mountainous areas and results in food shortage, unemployment and social conflict. This deepens instability by disrupting production systems and marketing channels by displacing the local farm population. When coupled with intermittent droughts, food shortages deepen and urban migration increases. Although this situation is present throughout Burundi, it is profound in Cibitoke, Bubanza and Bumbura Rural provinces³⁹.

Under current climate change trends there will be a significant impact on some of the principal food and commercial crops in Burundi. The main staple crops are bananas, cassava, sweet potatoes, and beans. Maize (a secondary staple crop), beans and sweet potato yields are expected to decrease gradually, with maize yield decreases of 5-25% predicted for the next decades⁴⁰. Rising temperatures and erratic or lower rainfall will have a negative impact on Burundi's primary exports of coffee and tea, which account for 90% of foreign exchange earnings⁴¹.

In Burundi, women make up 56% of the agricultural workforce. Although rural women and men may play complementary roles in farming activities, women tend to play a greater role in natural resource management and ensuring nutrition in the household. Responsibility for climate change adaptation is likely to fall on their shoulders, including finding alternative ways to feed and provide water for their families⁴².

Climate-smart agriculture has the potential to both increase production and build resilience for climate change. However, there are significant challenges including political instability, the increasing fragmentation of farms, uncertainty in land tenure (especially concerning women's access to land), and access to information, credit, inputs, and markets.

National government strategies and policies

Burundi has been characterised as one of the countries in the region that are 'less actively engaged' in climate change adaptation (in comparison with highly engaged countries such as Ethiopia, Rwanda, Kenya and Uganda). This is the

outcome of national priorities and national capacities⁴³ and more recently the political crisis which has also resulted in a decline of opportunities for financial and technical support. Nevertheless, Burundi has prepared national strategies and policies for climate change and participated in the UNFCCC conferences and agreements.

Burundi has ratified the UN Convention on Biological Diversity (CBD) for which it elaborated a Biological Diversity National Strategy and Plan of Action, the Convention to Combat Desertification (CCD) for which it elaborated a National Plan of Action to Combat Desertification, the Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol. Burundi signed the Paris Agreement in April 2016 and ratified the agreement in January 2018 with it entering into force in February 2018 (see Nationally Determined Contributions below). It has prepared two National Communications for the UNFCCC and a National Action Plan for Adaptation (NAPA)⁴⁴. In the NAPA (2007), priority areas are:

- reinforce the management of existing protected areas and include in protected areas the natural ecosystems identified as being threatened and vulnerable;
- safeguard existing woodlots and reforest the stripped areas;
- install mechanisms to control erosion in sensitive areas;
- control the river dynamics of watercourses and torrents in Mimirwa, including the city of Bujumbura;
- popularise short cycle and dryness resistant food crops;
- popularise rainwater harvesting techniques for agricultural or domestic use;
- identify and popularise improved techniques for use of wood and new renewable energies;
- increase the number of hydropower micro stations;
- establish and protect strategic buffer zones in Lake Tanganyika floodplain and around the lakes of Bugesera;
- identify and popularise the breeding of species adapted to local climate conditions;
- popularise zero-grazing techniques;
- identify and popularise dryness resistant forest species;
- train and inform the decision makers and other partners, including the local communities on the methods of adaptation to climate variability;
- improve seasonal early warning climate forecasts.

However, only one of the priority areas has been implemented (improve seasonal early warning climate forecasts). All others remain unfunded so far, leaving a number of vulnerable sectors without action on the identified priorities (including agriculture, freshwater and forestry)⁴⁵.

³⁹ These provinces are the targeted provinces of Netherlands bilateral food security program. Embassy of the Kingdom of the Netherlands (EKN) 2013. Multiannual Strategic Plan (2014-2017).

⁴⁰ Baramburiye et al. (2013)

⁴¹ Ross, P (2015) Climate Change Effects On Coffee Production: How Hotter Weather Is Killing The Global Arabica Bean Market <http://www.ibtimes.com/climate-change-effects-coffee-production-how-hotter-weather-killing-global-arabica-1905151>

⁴² Brody et al., 2008, p. 4, in Nabalamba, A., Mubila, M., Alexander, P. (2011): *Climate Change, Gender and Development in Africa*. African Development Bank

⁴³ Hove, H.; Echeverría, D.; Parry, J.E. (2011): *Review of Current and Planned Adaptation Action: East Africa*. Adaptation Partnership / International Institute for Sustainable Development. https://www.iisd.org/pdf/2011/East_Africa_Adaptation_Action.pdf

⁴⁴ Burundi Ministry for Land Management, Tourism and Environment (2007), in Baramburiye et al. (2013)

⁴⁵ Hove et al. (2011)

In 2012, Burundi finalised its National Climate Change Strategy and Action Plan⁴⁶. Early 2015, Burundi published a report on its progress on activities under the Hyogo framework for action. These primarily concern disaster risk reduction, but also include climate change relevant activities. The report concluded that Burundi was at that time relatively well on track in reaching its objectives, because:

- early warning systems are in place and information on extreme climate events is available;
- strategies and policies concerning climate change are in place;
- disaster risk reduction is an integral objective for climate change adaptation policies;
- potential risk scenarios are developed taking into account climate change projections.

Three areas were identified as priorities for the future:

- integrate disaster risk reduction into policies and plans for sustainable development;
- develop and strengthen institutions, mechanisms and capacities to build resilience to hazards;
- systematically consider risk reduction in emergency preparedness/response/recovery activities⁴⁷.

The government of Burundi has drafted a roadmap to move Burundi's NAP process forward. Formal support to support the NAP process was requested by UNDP in March 2016.⁴⁸

Nationally Determined Contributions (NDC)⁴⁹

Burundi submitted its First NDC in January 2018 to the UNFCCC⁵⁰. In its NDC Burundi presents itself as being vulnerable to climate change. It projects that climate change affects every economic sector in the country, but will particularly impact agriculture and hinder the development of hydropower.

The NDC details adaptation and mitigation measures, with a total cost of over USD 1.493 billion of which all but USD 47 million is allocated to mitigation measures (development of hydro-electricity, solar, reforestation programs, see below).

Mitigation. Burundi provides a business-as-usual scenario and two scenarios for reduction of its emissions by 2030: a 3% unconditional objective (through its own initiatives) and a 20% conditional objective (implementation will depend on the financial support of the international community). The unconditional (national) objective of 3% reduction is to be achieved by: (i) a 15-year reforestation program (annual reforestation rate of 4,000 hectares) under the National Reforestation Programme and (ii) increasing electrification rate by 35% by building three hydroelectric power plants. The conditional objective of 20% is to be realized by additional financing of (i) forestry schemes – aiming to reforest 8,000 hectares per year, and (ii) agricultural development – mainly replacement of mineral fertilizers with organic fertilizer to lower emissions from agriculture.

Adaptation. To successfully adapt to climate change, Burundi's NDC proposes to prioritise actions that reflect the priorities identified in its National Strategy and Action Plan on Climate Change (2012):

Climate risk adaptation and management

- Integrated water resources management by a small hydrological unit
- Integrated management of climate risk and forecasts over time (by means of probabilities and forward-looking studies) so as to be able to take action in advance
- Protection of aquatic and land-based ecosystems
- Coaching of the population to develop their resilience to climate change
- Development of institutional and operational capacities to coordinate programmes that are resilient to climate change
- Research on the vulnerability and adaptation of socioeconomic sectors to climate change
- Establishment of functional monitoring and evaluation mechanisms for climate change, as well as knowledge management and information mechanisms
- Research and extension of drought-resistant forest species
- Promotion of climate-smart agriculture (agrometeorology)

Capacity-building, knowledge management and communication

- Enhancement of data and information management and distribution mechanisms
- Reinforcement of climate change impact tracking systems by means of observations and investigations
- Improvement of scientific and technological research on adapting to climate change, supported by climate observations
- Improvement of the legislative and regulatory framework for handling climate change as part of investment programmes and the promotion of public-private partnerships
- Strengthening of the information and data communication and exchange system

⁴⁶ Nile Basin Initiative (2013): Climate Change Strategy. www.nilebasin.org/index.php/media-center/publications/doc_download/104-nbi-climate-change-strategy

⁴⁷ HFA (2015): Burundi - Rapport national de suivi sur la mise en oeuvre du Cadre d'action de Hyogo (2013-2015) - Interim

⁴⁸ <http://adaptation-undp.org/explore/eastern-africa/burundi>

⁴⁹ Republic of Burundi (2018). Nationally Determined Contribution. Available via <http://www4.unfccc.int/ndcregistry/PublishedDocuments/Burundi%20First/CPDN%20BURUNDI.pdf>

⁵⁰ The First NDC is the INDC that was submitted to September 2015 prior to the Paris COP.

Burundi is a member country of the NDC-Partnership⁵¹, but a work plan for support activities has not been prepared. Burundi's National Adaptation Plan is still under preparation⁵².

Climate finance

According to an ODI report (2014), Burundi is lagging behind its neighbouring countries in terms of finance approved from international climate funds. At the time of report no mitigation finance had been approved, with the amount approved for adaptation of approximately USD 12 or 14 million (according to different sources)^{53 54}. Burundi has expressed interest in becoming one of the countries in the REDD project of the Forest Carbon Partnership Facility (FCPF) and requested financial support to prepare its Readiness Plan Idea Note (R-PIN) that is needed to request FCPF support.

The relatively low amount of climate finance is the result of the Burundi's low readiness to access and absorb climate finance and the current political crisis. Crucial institutional and legal policy frameworks were only recently developed or are still being prepared. There are only few climate-change experts in the country. Overall weak technical and financial management adds to the balance and hinders the preparation of proposals and implementation of projects⁵⁵. For the Green Climate Fund, in contrast to Rwanda and Kenya, Burundi has a focal point (Ministry of Finances and Economic Development Planning) rather than a designated authority⁵⁶, nor an accredited entity (AI) that would enable direct access to the Green Climate funds.

Climate change projects

The relatively limited amount of climate change projects in Burundi can be explained at least in part by its recent period of conflict – which encourages other priorities. Climate change projects with a link to water and/or food security that are implemented in the country (either bilaterally or through international climate funds) include:

- 'ACCES' (2013-2018), entailing various projects for reconstruction and rehabilitation of the area north of the capital that suffered during the floods of February 2014, commissioned by GIZ and implemented by the World Bank, EU, AfDB and the Government of Burundi (ca. USD 25 million)⁵⁷;
- two regional projects of which Burundi is one of the targeted countries: 'Lake Tanganyika Integrated Environmental Management Programme' and 'Mainstreaming Groundwater Considerations into the Integrated Management of the Nile River Basin', implemented by UNDP and funded by GEF⁵⁸;
- 'Climate Change Adaptation project for water and soil resources protection' (2013-2018), funded by GIZ (ca. USD 10 million)⁵⁹;
- a research project on the economic impacts of climate change in Burundi, funded by DFID⁶⁰.

For a list of international and multilateral climate projects in Burundi, see the [Annex](#).

Climate contribution of the Netherlands

The Netherlands supports climate-relevant projects in Burundi through a variety of channels and in cooperation with range of actors with a focus on food security, halting deforestation and renewable energy:

- PAPAB program: the program aims to increase food security of at least 480,000 farming families, by promoting market-oriented, climate resilient and sustainable agricultural techniques, supported by fertilizer subsidies. PAPAB is the follow-up program of previous soil fertility programs (ISFM), integrated farm planning projects (PIP) and fertilizer subsidy programs;
- nutrition, school feeding and agricultural production program (P4P): the program focuses on reversion of deforestation and contributes to re-greening of the environment. The production component of P4P is linked to PAPAB. Nutrition and school feeding refers to climate smart agricultural practices (including planting of trees);
- financial services for farmers (agri-finance): the project aims to increase access of smallholders to credit to enable them to invest in new technologies and build their adaptive capacity. It includes a pilot on climate risk insurance, the first in Burundi;
- Energising Development program: in Burundi this program focuses on providing access to electricity through market introduction of solar photovoltaic systems for households, SMEs and social institutions.

⁵¹ NDC-Partnership. <http://ndcpartnership.org/partners>

⁵² <http://www.adaptation-undp.org/projects/supporting-burundi-advance-their-nap-process>

⁵³ Nakhooda, S.; Norman, M. (2014): *Climate Finance: Is it making a difference? A review of the effectiveness of Multilateral Climate Funds*. ODI. <http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9359.pdf>

⁵⁴ Climate Funds Update website: <http://www.climatefundsupdates.org/country-pages>

⁵⁵ Tippmann, R.; Agoumi, A.; Perroy, L.; Doria, M.; Henders, S.; Goldmann, R. (2013): *Assessing Barriers and Solutions to Financing Adaptation Projects in Africa*. IDRC

⁵⁶ Green Climate Fund (2017): *National Designated Authority (NDA) and focal point designations*. http://www.greenclimate.fund/how-we-work/tools/country-directory?p_p_id=4_WAR_gcfSolarisportlet&p_p_lifecycle=0&p_p_col_id=column-1&p_p_col_pos=2&p_p_col_count=3&_4_WAR_gcfSolarisportlet_code=BI

⁵⁷ HFA (2015)

⁵⁸ UNDP/GEF: <http://web.undp.org/gef/document/Projects%20Under%20Implementation%20-%20AFRICA.pdf>

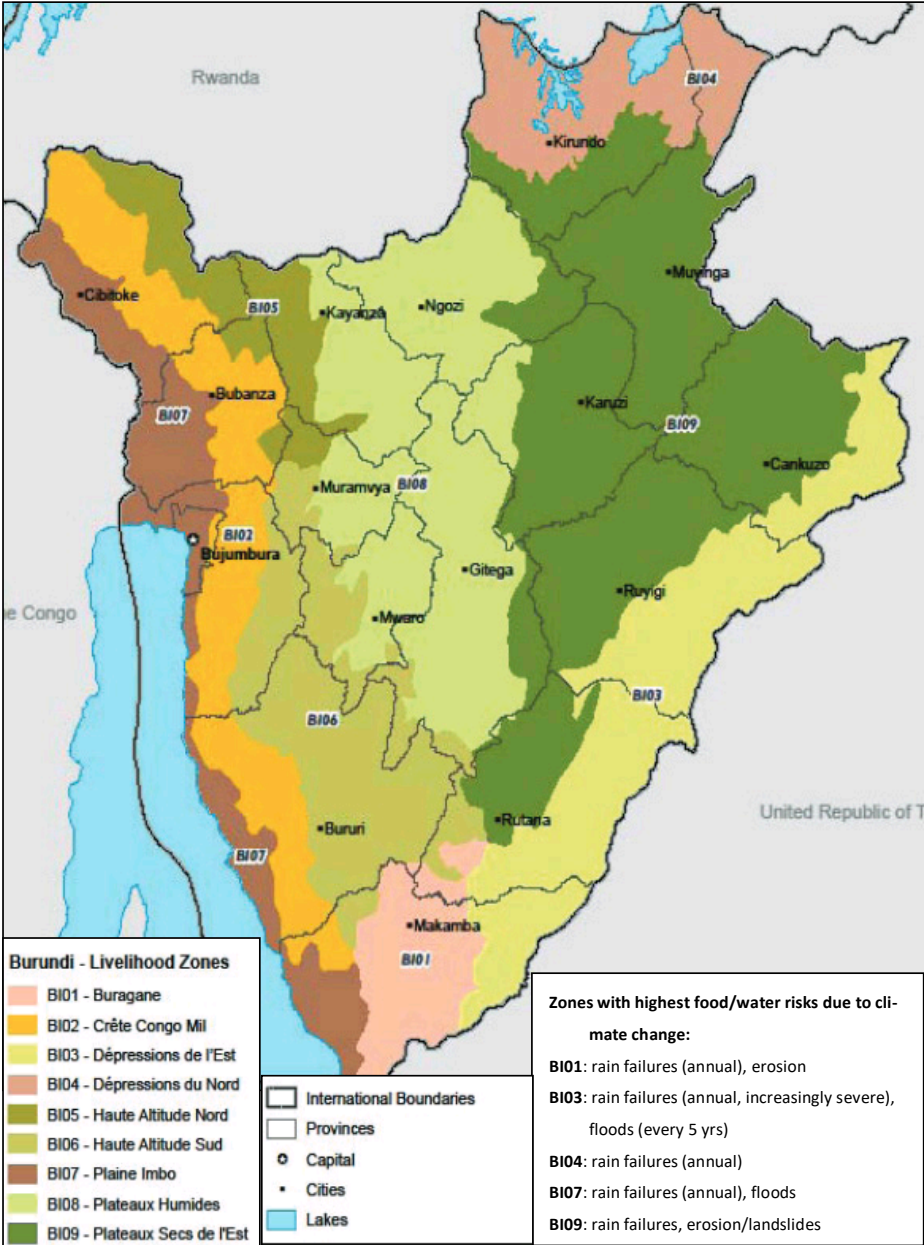
⁵⁹ HFA (2015)

⁶⁰ <https://www.weadapt.org/knowledge-base/economics-of-adaptation/economics-of-adaptation-burundi>

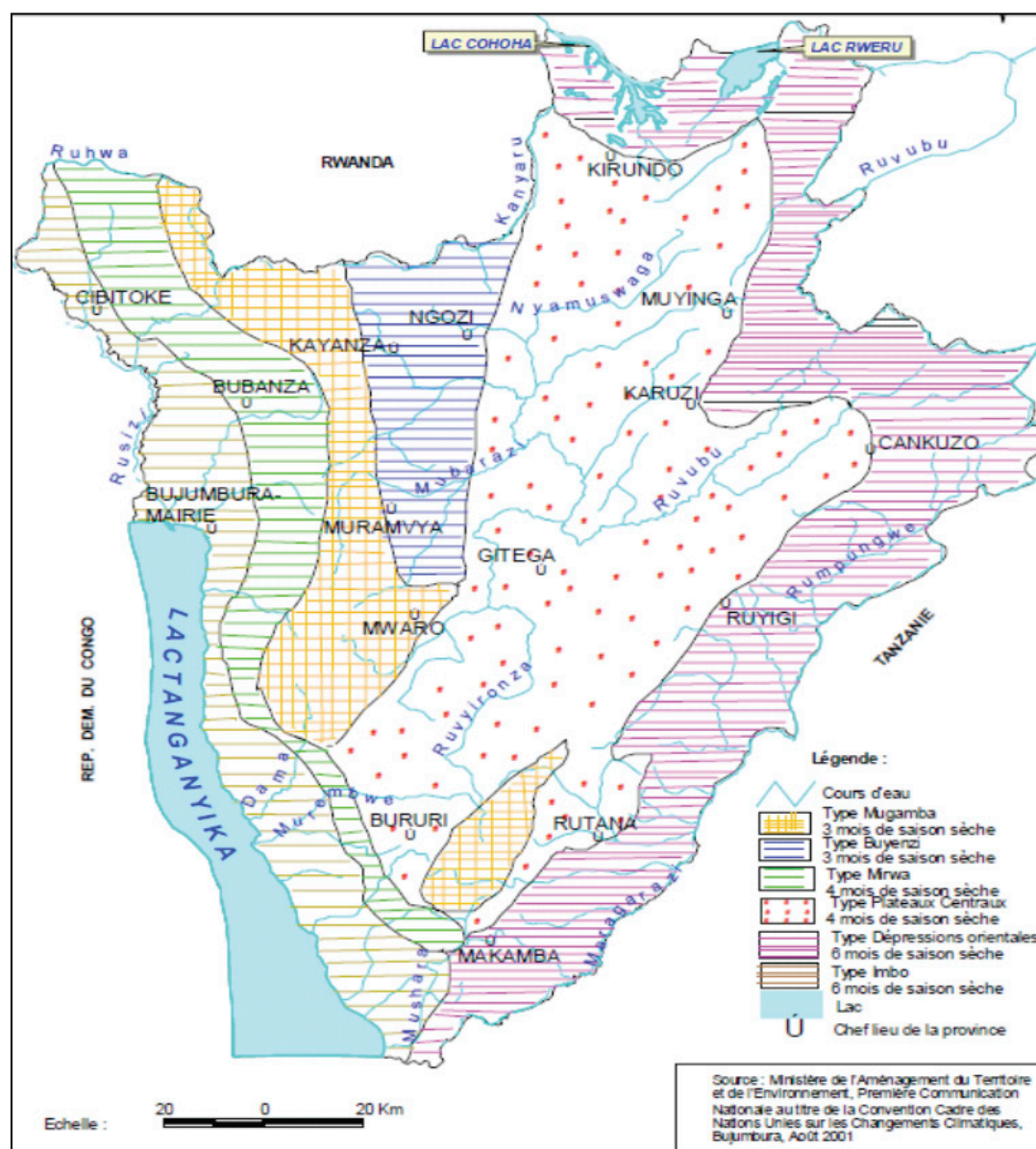
Maps

Map 1 Zones most at risk due to climate change

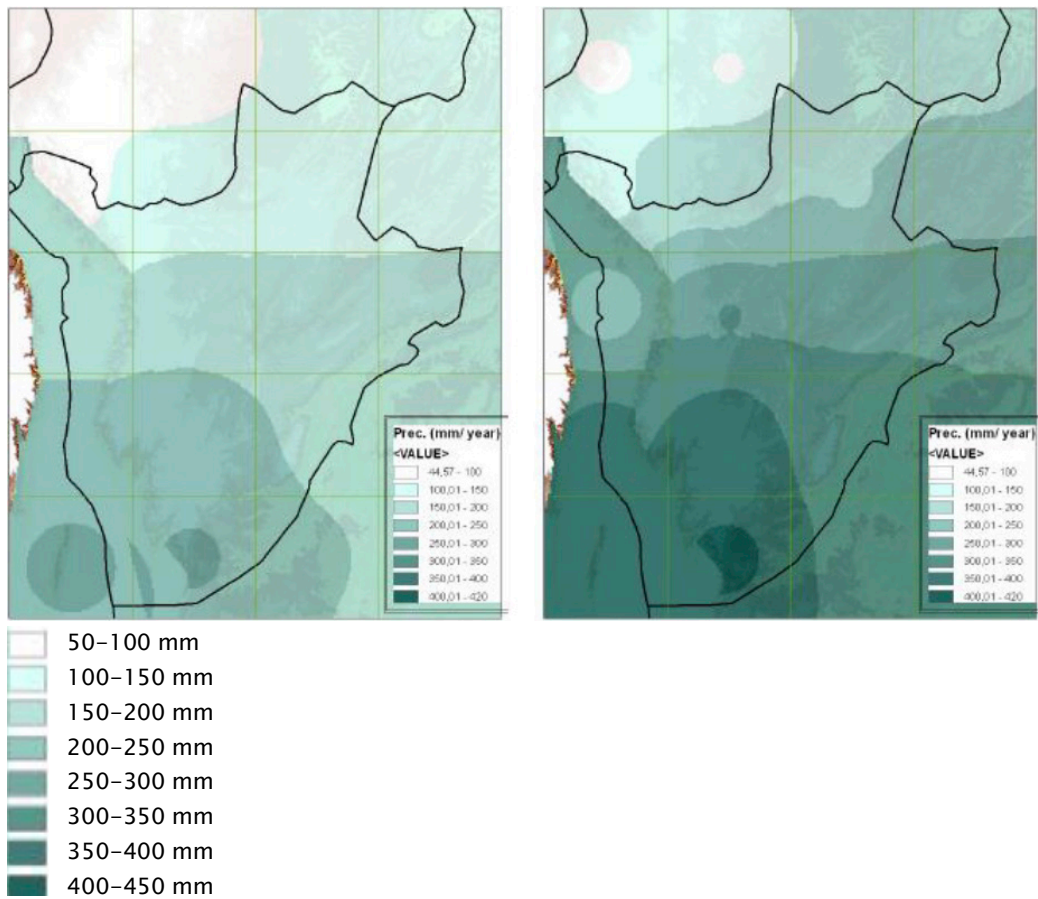
Adapted from FEWS NET and USAID (2009): Livelihoods zoning “plus” activity in Burundi



Map 2 Climatological zones in Burundi

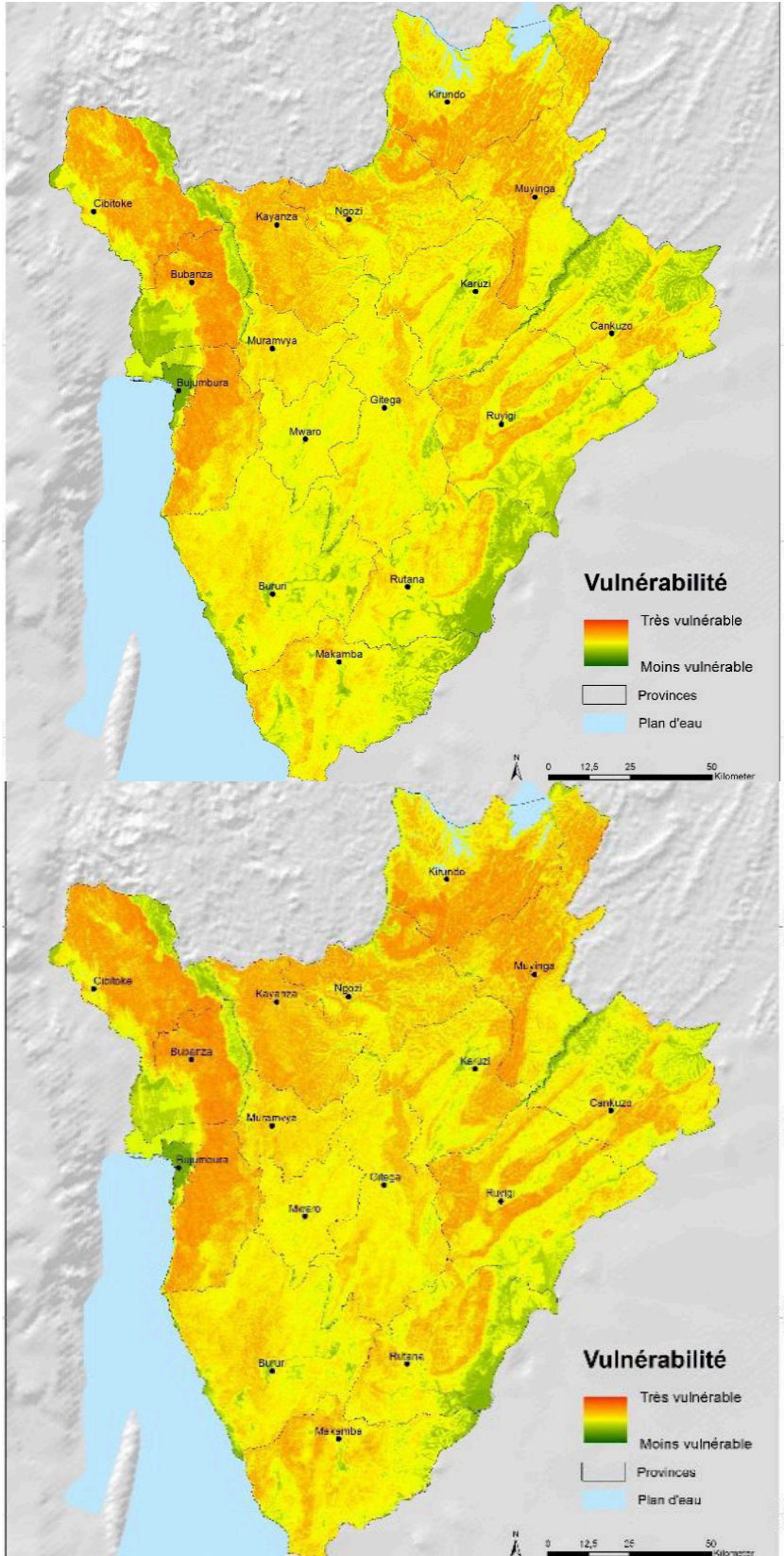


Map 3 Projected annual rainfall, 2031-2060 (left) and 2071-2099 (right)



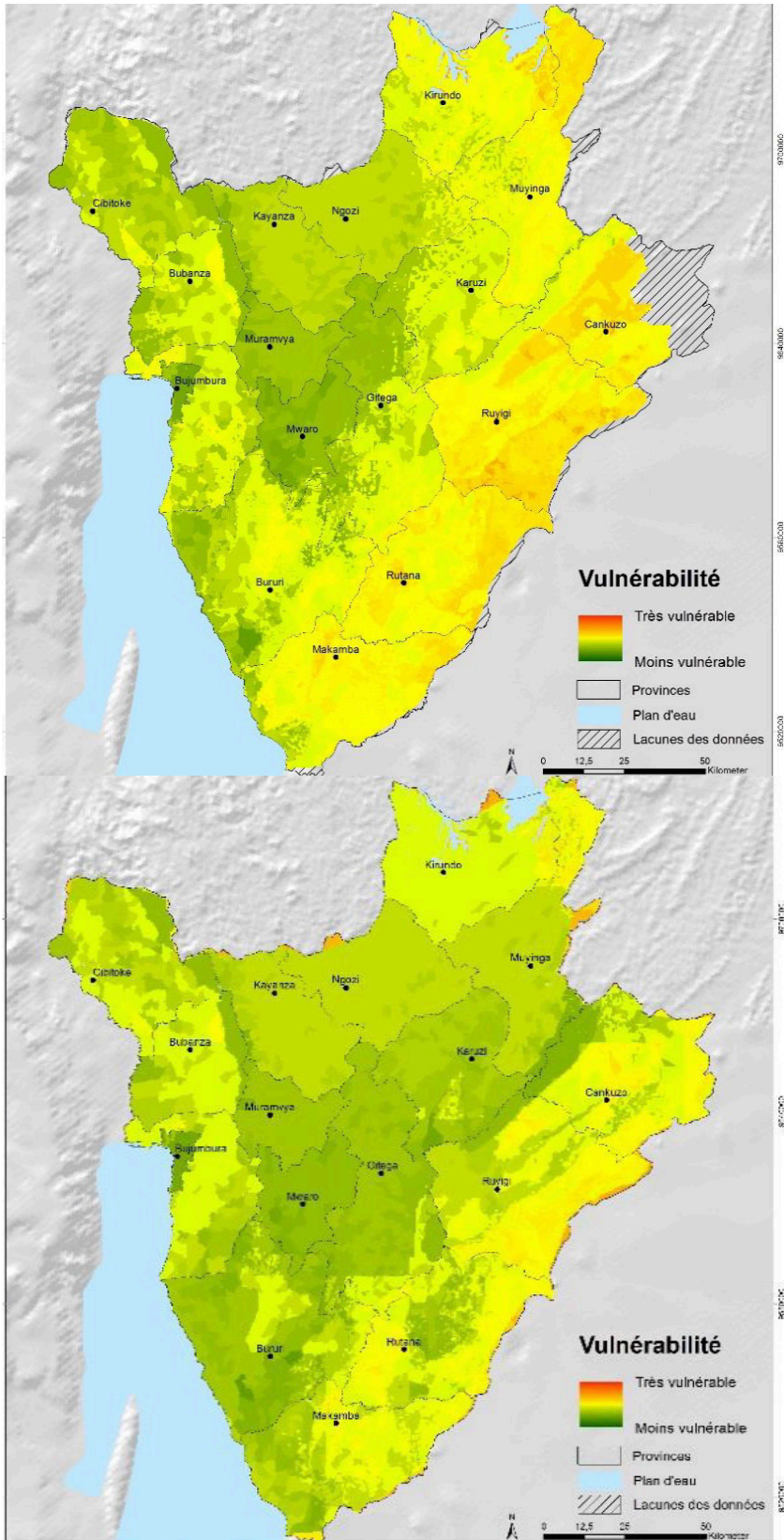
Source: Bollin, C.; K. Fritzsche; S. Ruzima; S. Schneiderbauer; D. Becker; L. Pedoth; S. Liersch (2014):
Analyse intégrée de la Vulnérabilité au Burundi, GIZ and MEEATU & MINAGRIE

Map 4 Vulnerability to erosion in 2014 (top) and 2071-2099 (bottom)



Source: Bollin et al. (2014)

Map 5 Vulnerability to drought in 2014 (top) and 2071-2099 (bottom)



Source: Bollin et al. (2014)

Annex

International and multilateral climate projects (since 2012)

Sources Climate Funds Update (2017)⁶¹ and World Bank (2017)⁶²

Name of Project	Fund	Amount of Funding Approved (USD millions)	Disbursed (USD millions)	Dates
Promotion of Small Hydro Power (SHP) for Productive Use and Energy Services	Global Environment Facility (GEF6)	1,6		2015
Restructuring of the Value Chain Development Programme (PRODEFI)	Adaptation for Smallholder Agriculture Programme (ASAP)	5	0.8	2015
Community Disaster Risk Management in Burundi	Least Developed Countries Fund (LDCF)	8,8	8,8	2012
Infrastructure resilience emergency project	World Bank	25		2015
BI-Jiji and Mulembwe Hydropower	World Bank	100		2014
Sustainable Coffee Landscape project	World Bank	4,2		2013

⁶¹ <http://www.climatefundsupdate.org/data>

⁶² http://projects.worldbank.org/search?lang=en&searchTerm=&countrycode_exact=BI

Published by:

Ministry of Foreign Affairs of the Netherlands
P.O. Box 20061 | 2500 EB The Hague | The Netherlands

www.government.nl/foreign-policy-evaluations

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