# CLIMATE FINANCE PATHFINDER


## ETHIOPIA REPORT

Rockefeller Brothers Fund

IAN CALLAGHAN ASSOCIATES

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# ACKNOWLEDGEMENTS

Photo Credit: Mulugeta Wolde

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The views expressed do not necessarily reflect RBF's official policies, nor those of the organisations contacted. The authors are solely responsible for the content of this document.

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# ABBREVIATIONS

| | |
|---|---|
| **AF** | Adaptation Fund |
| **AFD** | *Agence Française de Développement* |
| **AfDB** | African Development Bank |
| **ATA** | Agricultural Transformation Agency |
| **CALM** | Climate Action through Landscape Management |
| **CFP** | Climate Finance Pathfinder |
| **CIC** | Climate Innovation Centre |
| **CRGE** | Climate Resilient Green Economy |
| **DBE** | Development Bank of Ethiopia |
| **DFC** | Development Finance Corporation (US) |
| **DFI** | Development Finance Institution |
| **DFID** | Department for International Development (UK) |
| **EEA** | Ethiopian Energy Authority |
| **EEP** | Ethiopian Electric Power |
| **EEU** | Ethiopian Electric Utility |
| **EFCCC** | Environment, Forest and Climate Change Commission |
| **EnDev** | Energizing Development |
| **ENREP** | Electricity Reinforcement and Expansion Project |
| **EPRDF** | Ethiopian People's Revolutionary Front |
| **NAP-ETH** | Ethiopia National Adaptation Plan |
| **FAO** | Food and Agricultural Organization |
| **FDI** | Foreign Direct Investment |
| **FDRE** | Federal Democratic Republic of Ethiopia |
| **GCF** | Green Climate Fund |
| **GDP** | Gross Domestic Product |
| **GEF** | Global Environment Facility |
| **GERD** | Grand Ethiopian Renaissance Dam |
| **GGGI** | Global Green Growth Institute |
| **GHG** | Greenhouse Gas |
| **GTP** | Growth and Transformation Plan |
| **IFAD** | International Fund for Agricultural Development |
| **IFC** | International Finance Corporation |
| **IMF** | International Monetary Fund |
| **IPCC** | Intergovernmental Panel on Climate Change |
| **IPP** | Independent Power Producer |
| **JICA** | Japan International Cooperation Agency |
| **MDB** | Multilateral Development Bank |
| **MFI** | Microfinance Institution |
| **MOFEC** | Ministry of Finance and Economic Cooperation |
| **MOWIE** | Ministry of Water, Irrigation, and Electricity |
| **MRV** | Monitoring, Reporting, and Verification |
| **NARS** | National Agricultural Research System |
| **NBE** | National Bank of Ethiopia |
| **NDC** | Nationally Determined Contribution |
| **NEP** | National Electrification Plan |
| **NGO** | Non-Governmental Organisation |

| | |
|---|---|
| **ODA** | Official Development Assistance |
| **ODI** | Overseas Development Institute |
| **PPA** | Power Purchase Agreement |
| **PPP** | Public–Private Partnership |
| **PV** | Photovoltaic |
| **RBF** | Rockefeller Brothers Fund |
| **REDD+** | Reducing Emissions from Deforestation and Forest Degradation |
| **REES** | Rural Electrification Executive Secretariat |
| **REGREP** | Renewable Energy Guarantee Programme |
| **RET** | Rural Energy Technology |
| **RUFIP** | Rural Financial Intermediation Programme |
| **S&P** | Standard and Poors |
| **SACCO** | Savings and Credit Cooperatives |
| **SME** | Small and Medium Enterprise |
| **TPLF** | Tigray People's Liberation Front |
| **UNDP** | United Nations Development Programme |
| **UNFCCC** | United Nations Framework Convention on Climate Change |
| **UNOPS** | United Nations Office for Project Services |
| **USAID** | United States Agency for International Development |
| **WASH** | Water Sanitation and Hygiene |

# EXECUTIVE SUMMARY

## CHAPTER 1: INTRODUCTION

**The Climate Finance Pathfinder (CFP)** is a project supported by the Rockefeller Brothers Fund (RBF) that scopes the opportunity for low- and lower middle-income countries to access finance for their Nationally Determined Contributions (NDCs). It consists of a mapping and analysis of each country's climate finance landscape and provides specific initial recommendations based on this analysis on the steps countries may take to attract increased climate finance flows, especially of private and concessional finance.

The CFP process consists of three stages:
1. Initial research and country scoping visit
2. In-depth in-country assessment, including interviews with key stakeholders, and recommended approach; and
3. Dissemination.

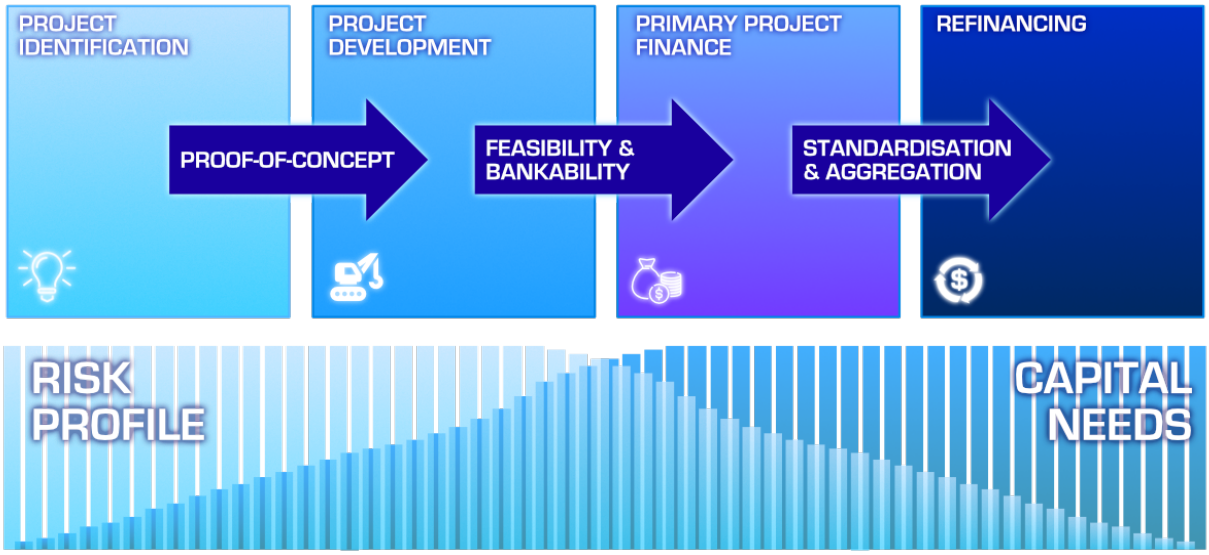
This report focuses on the agriculture and energy sectors, but the same approach could be applied to other priority sectors.

**The climate finance supply chain**
The CFP approach is based on the concept of the 'climate finance supply chain', built from experience and observation in a number of countries. For any country to be successful in mobilising climate finance at scale, this supply chain needs to work effectively. The chain typically has four main stages:

i) Project origination—the identification of projects contributing to the implementation of a country NDC or low-carbon strategies
ii) Project development—to the state where a project can be considered for finance
iii) Primary project finance—ideally/typically in local markets; and
iv) Refinancing of projects (for projects with certain types of cashflow) via instruments such as green bonds, often raised on international capital markets.

The risk profile and capital needs of projects are inversely proportional as they proceed along the chain. Proof of concept will be required to move from project identification to development, feasibility, and bankability to primary project finance and standardisation and aggregation to facilitate refinancing.

### THE CLIMATE FINANCE SUPPLY CHAIN




Source: CFP team analysis

# CHAPTER 2: COUNTRY PROFILE

### TOPOGRAPHY AND DEMOGRAPHY

The diversity of Ethiopia's terrain determines regional variations in climate, natural vegetation, soil composition, and settlement patterns. Ethiopia is a landlocked country that, in recent times, has relied on Djibouti as its main port. Since the 1960s, Ethiopia's population has grown at an average of 2.5% annually, making it the second most populous nation in Africa behind Nigeria and one of the youngest populations in Africa. The population is comprised of a diverse mix of more than 13 ethnic and 80 linguistic groups. Almost 80% of the population live in rural areas, but urbanisation is increasing at a rate of 4.6% *per annum*.

### POLITICAL STRUCTURE

Ethiopia is a federal parliamentary republic. The President is the head of state, but the position is largely ceremonial, with executive power vested in the Prime Minister. Ethiopia is comprised of nine ethnically based regional states. Except for foreign policy and military and financial matters, each region has its own independent institutional arrangements in its respective regional government. While Ethiopia maintains a multi-party system, for the last three decades the legislature has been dominated by a single coalition party. The current ruling party, the Prosperity Party, is comprised of members of the former ruling Ethiopian People's Revolutionary Front (EPRDF) party, with the exception of the Tigray People's Liberation Front (TPLF) and other regional ruling parties.

### LEGAL SYSTEM

Ethiopia's Constitution came into effect on 21 August 1995. Under the Constitution, all land is owned by the state, which provides long-term leases to tenants. It has, however, been acknowledged that this opens up space for corruption, especially in rural areas. Ethiopia uses a civil law legal system combined with procedural laws, principally inspired by the civil and common law system.

Ethiopian law currently limits the areas in which foreign investors can engage and requires them to obtain an investment permit before starting a business in Ethiopia. This limitation

excludes the Ethiopian diaspora, referring to Ethiopians and people of Ethiopian descent with an Ethiopian birth certificate.

### ECONOMY

Ethiopia has a very low *per capita* income (US $790/year) but is one of the fastest growing economies in the region (9% *per annum* from 2007–17). There is strong growth in the agriculture (the largest employer in the country, but very vulnerable to climatic and economic shocks) and services (the principal source of foreign exchange earnings) sectors. The *Second Growth and Transformation Plan (GTP II)* (2015–20) sets a focus away from agriculture towards industry and exports, including through the establishment of industrial parks and export processing zones. Through the *Homegrown Economic Agenda* (announced in September 2019), Ethiopia aims to increasingly liberalise the economy and address structural bottlenecks currently inhibiting private sector activity. Measures are also being taken to address debt vulnerabilities and inflation (15% in 2019).

## CHAPTER 3: CLIMATE CHANGE PROFILE, STRATEGIES, AND ETHIOPIA'S NDC

As a result of various environmental issues—including deforestation, over-grazing, soil erosion, desertification, water shortages, and pollution—Ethiopia is already experiencing severe effects of climate change. Climate models show warming in all four seasons across the country, which may cause a higher frequency of heat waves as well as higher rates of evaporation. Increasing climate resilience is thus an urgent priority for Ethiopia. At the same time, the country has vast potential for achieving low-carbon status: it is rich in forests and has access to a range of renewable energy resources including hydro, solar, wind, and geothermal energy.

The Climate Resilient Green Economy (CRGE) Strategy maps Ethiopia's path to attaining three interlinked goals of economic growth, net-zero emissions, and resilience building. It comprises:

1. **The CRGE Strategy**, which prioritises:
    a. Development of hydropower capacity
    b. Large-scale dissemination of rural cookstoves
    c. Improving efficiency in livestock production
    d. Reducing emissions from deforestation and forest degradation (REDD+);

2. **The CRGE Facility**: an integrated structure and the primary mechanism to mobilise, access, and combine domestic and international public and private sources of finance to support the Strategy.

As to institutional structure, oversight and responsibility for the realisation of the CRGE vision are tasked to an Environmental Council, with implementation through collaboration from all relevant line ministries stakeholders.

Notably with respect to climate finance, the Ministry of Finance and Economic Cooperation (MOFEC) has received accreditation from the Green Climate Fund (GCF), albeit for small projects (US $10–US $50 million).

Ethiopia's NDC (currently being updated), comprising of both mitigation and adaptation measures and conditional upon international support, has four pillars, to:

i. Enhance crop and livestock productivity
ii. Protect and re-establish forests for economic benefits, ecosystem services, and $CO_2$ sequestration
iii. Increase electricity supply from renewable energy; and
iv. Promote the adoption of modern energy-efficient technologies.

Ethiopia has also established a REDD+ policy, the goal of which is to reduce deforestation and forest degradation and improve sustainable management of forests to increase carbon stocks. The forestry sector is intended to contribute 50% to total NDC emission reduction.

# CHAPTER 4: CLIMATE FINANCE LANDSCAPE

The implementation of the CRGE Strategy is estimated to cost a total of US $150 billion (an average of US $7.5 billion per year during the 20-year implementation period). Ethiopia receives funding for its implementation from numerous sources, both international and domestic.

The bulk of Ethiopia's international climate finance is presently being sourced from climate funds and multilateral and bilateral development banks and partners.

### CLIMATE FUNDS

- Since 2016, GCF has committed US $227.4 million to four projects, of which two are Ethiopia-specific:
  - the Resilient Landscapes and Livelihoods Project (US $107.2 million in loans and US $58.1 million grants)
  - responding to the increasing risk of drought: building gender-responsive resilience of the most vulnerable communities (US $45 million in grants).

- The Global Environment Facility (GEF) has provided grant funding of upwards of US $130 million, including:
  - Promoting Sustainable Rural Energy Technologies (RETs) for Household and Productive Uses
  - Climate Change Adaptation in the lowland ecosystems of Ethiopia.

- The Adaptation Fund (AF) has supported:
  - The Climate-Smart Integrated Rural Development Project (US $9.9 million)
  - The Agricultural Climate Resilience Enhancement Initiative (US $6.8 million).

### MULTILATERAL INSTITUTIONS

- The World Bank has several active programmes in Ethiopia, including: the Renewable Energy Guarantee Programme (REGREP); Climate Action through Landscape Management (CALM)—US $500 million; Climate Innovation Centre (CIC); Climate Business Innovation Network.

- The African Development Bank (AfDB) has provided grants and concessional debt for a number of climate-relevant projects, including US $10 million concessional loan (through the Clean Technology Fund) for the development of the Tulu Moye

geothermal power project; US $95 million in loans and grants for the development of power interconnection between Ethiopia and Djibouti; and grants to agricultural businesses through the Agriculture Fast-Track fund.

- The International Fund for Agricultural Development (IFAD) has provided over US $795 million (through grants and debt) for rural development projects in Ethiopia. In January 2020, IFAD announced the approval of US $305 million for the Rural Financial Intermediation Programme (RUFIP) III.

- The Global Green Growth Institute (GGGI) has supported the Government of Ethiopia in mainstreaming implementation of the CRGE Strategy.

- The United Nations Development Programme (UNDP) has supported Promoting Sustainable RETs for Household Uses; Urban NAMA Compost project; and numerous other capacity building and regulatory support projects.

### BILATERAL DEVELOPMENT PARTNERS

These include:

- **Germany** (through GIZ) is very active in the clean energy space

- **Norway** operates mostly in the forestry sector, supporting REDD+

- The **United Kingdom** has provided more than £139 million (US $181.8 million) of Overseas Development Assistance (ODA) to Ethiopia since 2011, making the country the largest recipient of such funding, mostly through the World Bank and CRGE; and

- The **United States**' Development Finance Corporation (DFC) (previously OPIC) provides risk guarantees for a range of projects, primarily in the power sector, with a focus on geothermal (it has pledged US $5 billion in the next three to five years). The United States is also active through Power Africa.

Alongside these public international sources, **foreign direct investment (FDI)** has risen exponentially in the last decade, from US $279 million in 2012 to as high as US $4.1 billion in 2016, but this has since decreased. China is the largest contributor to Ethiopia's FDI, followed by the United States, India, and Saudi Arabia. It is not clear what proportion of FDI could be classified as climate finance, but it is probably low, since most is directed towards generic (non-green) transport and power sectors.

Currently, international **commercial banks or institutional investors** are not allowed to operate in Ethiopia.

There are two **private equity** firms investing in SMEs: Schulze Global Ethiopia Growth and Transformation Fund I and Cepheus Growth Capital Partners (funded by CDC and Norfund, among others). These are chiefly investing in SMEs.

There is no official record or database of **non-governmental organisations (NGOs) or philanthropic organisations**, and it is therefore challenging to identify those operating in the climate change sector in Ethiopia. However, examples of these include Oxfam, WaterAid, and the Rockefeller Foundation.

In terms of **domestic funding**, the latest analysis from 2014 by the Overseas Development Institute (ODI) reported that **government funding** on climate change accounted for 80% of expenditures. However, a proposed tracking system due to come onstream in 2021 will facilitate real-time analysis.

Ethiopia's **banking sector** consists of a large number of formal, semi-formal, and informal financial service providers. Formal providers include the Development Bank of Ethiopia (DBE), while semi-formal providers include financial cooperatives (Savings and Credit Cooperatives (SACCOs)).

**Carbon markets** in Ethiopia are in the preliminary stages of development, but some donor agencies believe they show significant potential.

# CHAPTER 5: BARRIERS AND ENABLERS

Critical barriers to the access and mobilisation of finance persist, but Ethiopia has also made extensive progress in creating enablers for the transformation of its economy. The CFP methodology analyses these across five headings:

i) Policy and regulatory
ii) Finance and economics
iii) Technology and markets
iv) Information and capacity; and
v) Social, cultural, and behavioural.

Key findings from the interviews and other research carried out during the CFP project under each heading are summarised in the table below.

| POLICY & REGULATORY |
|---|
| **BARRIERS** |
| • The Ethiopian *birr* is not a freely convertible currency<br>• Strict regulations govern access to foreign loans<br>• Access to financial services is currently limited to domestic investors and the diaspora<br>• The National Bank of Ethiopia (NBE) has to authorise all repatriation of interest and principal payments on loan or credit facilities<br>• Only Basel I international regulatory banking framework implemented<br>• Financial regulations not yet aligned with international standards (e.g. anti-money laundering, combatting the financing of terrorism, setting up systems to prohibit modern slavery)<br>• Contract enforcement has been a concern for international investors |
| **ENABLERS** |
| • Strong commitment to climate change by mainstreaming the objectives of the CRGE Strategy<br>• New investment proclamation and regulations regarding private capital providing greater freedom and incentives for private investment:<br>  ○ Tax holiday period of 4–6 years<br>  ○ 100% exemptions on capital goods<br>  ○ Duty exemptions on construction<br>  ○ Export incentive schemes for materials that are not locally available<br>• The Public–Private Partnership (PPP) Proclamation 2018 removed institutional barriers that previously discouraged international independent power producers (IPPs) from participating in Ethiopia's electricity sector, leading to a number of auctioned IPPs |

- Under the 10-Year Development Plan, the exchange rate is expected to change to a market-based rate
- It is expected that the government will extend banking licences to international banks
- Recent ratification of 1958 Convention on the Recognition and Enforcement of Foreign Arbitral Awards (New York Convention) has made international arbitral decisions enforceable in Ethiopia

## FINANCE & ECONOMICS

### BARRIERS

- International finance prohibition has led to absence of more sophisticated financing mechanisms (incl. leasing, equity, and funds) and limited innovative asset classes
- No stock market operating
- Financial markets, including interbank money, foreign exchange, and bond markets, are nascent, accommodating only a limited amount of transactions
- Foreign exchange shortages make it challenging for the government to meet its debt obligations
- Delays when repatriating profits lead to an increase in risks and cost of capital
- Shallow financial sector and low coverage of financial services lead to limited financial inclusion
- The country is yet to fully take advantage of digital financial services
- Access to finance for households and businesses is challenging
- Interest rates and repayment periods on loans are prohibitive towards consumers and small businesses (while DBE lends to microfinance institutions (MFIs) at 8.5%, interest rates charged by MFIs to customers are 13%–17%)
- Banks set high collateral requirements on loans (often 100%): individuals are not able to own land and banks are reluctant to accept land leases as collateral
- Limit of 12.5% on non-performing loans, set by NBE, has forced lenders to tighten up on borrower procedures

### ENABLERS

- Working to improve debt management
- In 2020, NBE adopted a directive allowing licencing and authorisation of digital payment operations, meaning that mobile and internet banking/payment and agent banking are expected to start operating in Ethiopia
- Risk guarantees have been successful in lowering collateral requirements (e.g. reducing collateral requirements for home solar system importers by 50%), but many smaller businesses are yet to benefit
- The NBE directive on collateral may provide more access to finance to rural communities (property including livestock can be used as collateral)

## TECHNOLOGY & MARKETS

### BARRIERS

- There are business associations for some industries but these are not well organised and have very limited capacity
- There is limited value chain coordination in energy and agriculture sectors, leading to low market development
- Pay-Go schemes are not yet accessible, impacting off-grid expansion

### ENABLERS

- The Clean Cooking Alliance of Ethiopia provides a platform for private sector engagement and an example to other sub-sectors of how to organise to influence policy

## INFORMATION & CAPACITY

### BARRIERS

- Lack of adequate data to track climate finance
- Limited research capacity
- Limited support to education, research, and development
- Limited coordination and information sharing between ministries and departments
- At regional and *woreda* levels, limited knowledge and skills within institutions and low related coordination of activities
- Low project appraisal capacity of financial institutions

### ENABLERS

- The Ethiopian Investment Commission regularly conducts publicly available research and advocacy on barriers to investment
- At federal level, capacity within government ministries to access and mobilise funding is improving
- MOFEC has developed a strong understanding of PPP transactions and are now able to prepare IPP procurement documents and oversee competitive auctions processes
- Efforts are being made to increase banks' understanding of climate-related sectors and their appetite to lend

## SOCIAL, CULTURAL & BEHAVIOURAL

### BARRIERS

- There is historical distrust of the private sector
- Private investment has generally come through connections to wealthy investors, which has limited the ability of many entrepreneurs and businesses to access it

### ENABLERS

- Existence of business associations and the Ethiopian Investment Commission

# CHAPTER 6: SECTORAL ANALYSIS

## ENERGY SECTOR

**Sectoral priorities include:**

- Universal electrification: to be achieved with 65% grid connections and 35% through off-grid solutions. This has largely been achieved in urban areas (now at 99.6%); rural areas lag behind at 31%, but connectivity is expanding steadily
- Diversification of the energy supply: the government is keen to diversify Ethiopia's energy mix to avoid overdependence on hydropower, which increases the country's vulnerability to climate risk
- Increased FDI, particularly from the private sector: mostly through PPPs; and
- Increasing power exports: Ethiopia envisions becoming a regional power supplier, with plans to export power to neighbouring and regional countries.

**Key institutions** are:

- Ministry of Water, Irrigation, and Electricity (MOWIE)
- MOFEC
- The Ethiopian Energy Authority (EEA)
- Ethiopian Electric Power (EEP)
- Ethiopian Electric Utility (EEU); and
- The Rural Electrification Executive Secretariat (REES).

**Policies and legislation** include:

- Energy Policy (2013) Draft
- 10-Year Perspective Development Plan
- National Electrification Plan (NEP) 2018–23
- PPP Proclamation 2018; and
- Power Sector Reform Roadmap (in development).

**Additional sectoral barriers and enablers specific to the energy sector** include those listed in the table below.

*Additional sectoral barriers and enablers in the energy sector*

| POLICY & REGULATORY |
|---|
| **BARRIERS** |
| • Challenges in land acquisition, especially for geothermal and solar photovoltaic (PV)<br>• Attaining permits and licences for projects is a complicated process that involves multiple agencies |
| **ENABLERS** |
| • The government has pledged to take steps to address land acquisition to facilitate future projects<br>• The government is considering a one-stop-shop for project developers to obtain all licences and permits |

| FINANCE & ECONOMICS |
|---|
| **BARRIERS** |
| • Retail tariffs for electricity are currently below the cost of power supply, limiting the attractiveness for private investment in the power sector and undermining the financial sustainability of the sector<br>• Reductions in power demand from neighbouring countries can leave Ethiopia with overcapacity of generated power, thereby undermining the financial viability of its energy sector |
| **ENABLERS** |
| • The government is working with the World Bank on a plan to gradually increase electricity tariffs. So far two tariff increases have been made, with an additional increase expected in 2021. Following this, tariffs will be adjusted every four years to enable full cost recovery<br>• UNDP is assisting the Government of Ethiopia on developing a clear and transparent calculation methodology for mini-grid tariffs<br>• Power exports present an opportunity to bring in much-needed foreign currency |

| TECHNOLOGY & MARKETS |
|---|
| **BARRIERS** |
| • Standardisation of products and services, particular for clean cookstoves and household solar systems |
| **ENABLERS** |
| • The German Energizing Development (EnDev) and UNDP are supporting the development of product standards for clean cookstoves and household solar products |

### AGRICULTURE SECTOR

**Sector priorities** include:

- Food security: despite over 80% of Ethiopia's population being engaged in agriculture activities and related increasing exports, approximately 35% of the population remains food insecure. Frequent droughts, lack of training and equipment for farmers, and poor access to markets adversely impact agricultural productivity.
- Climate resilience: changes in water availability and competition for land, among other reasons, make agriculture very insecure, and CRGE has prioritised improving crop and livestock production practices for higher food security and farmer income while reducing emissions.

**Key institutions** are:

- The Ministry of Agriculture
- The Agricultural Transformation Agency (ATA); and
- National Agricultural Research System (NARS).

**Policies and legislation** include:

- Agricultural Sector Policy and Investment Framework 2010–20; and
- GTP II.

**Additional sectoral barriers and enablers** include those listed in the table below.

*Additional sectoral barriers and enablers in the agriculture sector*

| FINANCE & ECONOMICS |
|---|
| **BARRIERS** |
| • High risk–low return profile due to low economies of scale of small farming ventures<br>• Small project sizes, increasing transaction costs<br>• 'Lumpy' cash flows: typical cash flows consist of one large outflow (loan) followed by a large inflow several months later following the harvest<br>• High covariance across borrowers: all borrowers are similarly affected by the same macro risks, especially climatic shocks<br>• Lack of appropriate collateral, as leases are often not accepted<br>• Access and use of agricultural insurance remains limited |
| **ENABLERS** |
| • In 2014, the Ministry of Agriculture and ATA established an Input Voucher Scheme to encourage increased adoption of improved agricultural inputs |

| TECHNOLOGY & MARKETS |
|---|
| **BARRIERS** |
| • Diverse types of sub-businesses, each with distinct dynamics, impacts on the appraisal capacity of lenders<br>• Dispersed population: over 80% of Ethiopia's population live in rural areas, with these being sparsely distributed, making value chain development and outreach hard |
| **ENABLERS** |
| • Approx. 12,000 Farmer Training Centres were introduced to provide a range of services at the village level, including on market development |

| INFORMATION & CAPACITY |
|---|
| **BARRIERS** |
| • Mostly outdated practices used by smallholder farmers |
| **ENABLERS** |
| • Farmer Training Centres provide information and capacity building support to farmers at the village level |

# CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS

The table below summarises the main conclusions, recommendations, proposed next steps, and funding options that arise from the research.

*Conclusions, recommendations, and next steps*

|  SUPPLY CHAIN SUPPORT |
|---|
| **CONCLUSION** |
| There is no structured approach to support the operation of an efficient climate finance supply chain. |
| **RECOMMENDATIONS** |
| Support the establishment of a support unit or incubator for project developers and entrepreneurs to originate projects or business ideas and take them successfully through the climate finance supply chain. |
| **SUGGESTED NEXT STEPS** |
| Development of concept note to outline options for the unit. |
| **FUNDING** |
| Philanthropic, multilateral, or bilateral donors, or a combination. |

|  MAPPING OF FINANCE SOURCES AND PROJECT SUPPLY CHAIN |
|---|
| **CONCLUSION** |
| There are gaps across the entire supply chain (see the 'Mapping of finance sources and project supply chain below), especially in identification and refinance. |
| **RECOMMENDATIONS** |
| Engage with potential financiers across the supply chain to develop a more complete assessment. |
| **SUGGESTED NEXT STEPS** |
| Development of proposal for the revision and regular updating of mapping. |
| **FUNDING** |
| Philanthropic, multilateral, or bilateral donors, or climate funds (e.g. GCF Readiness). |

## DEVELOPMENT OF INTERNATIONAL AND DOMESTIC FINANCIAL MARKETS

### CONCLUSION

Limited development of domestic (and international) financial markets

### RECOMMENDATIONS

Technical assistance will be required through a combination of:

- Knowledge sharing of best practices
- On-the-job training
- Development of instruments and asset classes
- Direct financing

### SUGGESTED NEXT STEPS

- Revision and validation of barriers and enablers analysis
- Detailed capacity building assessment of financial sector

### FUNDING

Philanthropic, multilateral, or bilateral donors, international commercial banks, or climate funds (e.g. GCF Readiness)

## INSTITUTIONAL CAPACITY BUILDING

### CONCLUSION

Low capacity in a range of governmental and non-governmental actors

### RECOMMENDATIONS

Dedicated technical assistance programme focusing initially on energy and agriculture to provide capacity on, among others:

- Monitoring and tracking finance to projects, especially from the private sector
- Platforms to connect different market players and improve coordination
- Alignment of resource mobilisation with investment priorities
- Concept notes and proposal development
- Environmental and social safeguards
- Database building and data management support (especially in geothermal energy)

### SUGGESTED NEXT STEPS

Detailed capacity building needs assessment

### FUNDING

Bilateral or multilateral sources or climate funds (e.g. GCF Readiness)

| PIPELINE DEVELOPMENT |
|---|
| **CONCLUSION** |
| There are unfunded opportunities cutting across the energy and agriculture sectors |
| **RECOMMENDATIONS** |
| Topics that may become bankable projects include:<br>• Medium- and large-scale irrigation<br>• Water Sanitation and Hygiene (WASH)<br>• Rural electrification |
| **SUGGESTED NEXT STEPS** |
| Identification of a long list and prioritisation through agreed criteria |
| **FUNDING** |
| Multitude of blended finance options |

## MAPPING OF FINANCE SOURCES AND PROJECT SUPPLY CHAIN

Using the climate finance supply chain concept as its base, the table below indicatively maps the existing resources available and identifies gaps in the current operation of the chain in terms of the various kinds of finance that need to be present at each stage of the chain for it to function effectively.

Green dots indicate that a particular type of finance is relevant to the respective stage and is available to at least some degree, while red dots indicate major gaps in what is required. Amber indicates there is still significant room to increase levels of finance/support from current levels. Where a cell is empty, the type of finance is not considered relevant either to the stage in the supply chain or to the type of institution represented in the cell.

The purpose of the table is to indicate quickly where providers of different types of finance may wish to focus their analysis of what new or additional resources they may be able to provide. As recommended above, our initial mapping should be taken to a further level of detail to be more complete.

*Mapping of finance sources and project supply chain*

| CATEGORIES | | | PROJECT SUPPLY CHAIN | | | |
|---|---|---|---|---|---|---|
| | | | Identification | Development | Primary finance | Refinance |
| Sources | Climate funds | International | ● | ● | ● | |
| | Multilateral institutions | | ● | ● | ● | |
| | Bilateral development partners | | ● | ● | ● | |
| | FDI | | | | ● | |
| | Commercial banks | | | ● | ● | ● |
| | Institutional investors | | | | ● | ● |
| | Private equity and venture capital | | ● | ● | ● | |
| | Impact funds | | | ● | ● | |
| | NGOs and philanthropic organisations | | | ● | ● | |
| | Government budget | Domestic | ● | ● | ● | |
| | Formal financial institutions | | ● | ● | ● | ● |
| | Semi-formal financial institutions | | | | ● | |

| CATEGORIES | | PROJECT SUPPLY CHAIN | | | |
|---|---|---|---|---|---|
| | | Identification | Development | Primary finance | Refinance |
| Instruments | Company balance sheets | | ● | ● | |
| | Bank loans/project finance | | ● | ● | ● |
| | Structured finance | | | ● | ● |
| | Bonds/green bonds | | | ● | ● |
| | Institutional investments | | | ● | ● |
| | Specialist sector finance | | ● | ● | ● |
| | De-risking products | | ● | ● | |
| | Microfinance | | | ● | |
| | Concessional finance | | ● | ● | |
| | Grants | ● | ● | ● (co-finance) | |

Source: CFP team analysis

- ● = Relevant, available
- ● = Relevant, partially available
- ● = Relevant, significant gap

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# 1. INTRODUCTION

Photo Credit: Trevor Cole

## 1.1 THE CLIMATE FINANCE PATHFINDER (CFP)

CFP is designed to assist low- and lower middle-income countries to develop strategies for accessing finance for projects related to their NDCs under the Paris Agreement and other low-carbon and development policies. The Pathfinder process involves a detailed country-level mapping, including of climate finance priorities and sources, institutional arrangements, and project case studies, leading to recommendations on what steps the country might take to attract increased climate finance flows, especially of private and blended finance. CFP also aims to identify initial potential project pipelines in key sectors identified within the country's NDC.

CFP has been developed and is implemented by a team of international climate finance experts, in alliance with local partners. Initial pilot assessments are being undertaken in Ethiopia and Uganda (both 2020) through funding from RBF.

The CFP process consists of three stages.

### 1. INITIAL RESEARCH AND COUNTRY SCOPING VISIT

An initial desk review was conducted to validate publicly available information on the NDC and other climate and low-carbon economy ambitions and policies. This also identified key sectors in the economy with particular relevance to the NDC, including the make-up of local capital markets and the availability of development and philanthropic finance (including ODA), the enabling environment for likely priority sectors (such as energy and agriculture), and the main risks and constraints associated with the country.

Following short initial visits to establish key relationships, a local partner consultant was identified in each country with significant expertise in climate policy and finance. The main

role of this partner has been to help set up and conduct interviews with local experts and policy makers. An initial country scoping report was prepared, capturing the information gathered during this first phase of the project.

#### 2. IN-DEPTH IN-COUNTRY ASSESSMENT AND RECOMMENDED APPROACH

The original CFP methodology foresees a second stage of the process comprising a longer visit to the country, assisted by local partner(s), to engage with and conduct interviews with a variety of stakeholders including government agencies, development finance institutions (DFIs), and multilateral development banks (MDBs), commercial banks, private equity funds, and relevant private sector businesses.

These interviews focus on barriers to and enablers of climate finance, such as:

- The nature and finance-readiness of potential project pipelines
- Risk appetite and awareness of climate finance modalities among finance providers of various kinds
- Delivery capacity of institutions and markets; and
- Levels of government interest in and commitment to improving the enabling environment in response to the unique needs of typical NDC-aligned projects.

Due to the COVID-19 pandemic, with significant travel restrictions in place, these in-country stakeholder interviews had to be conducted remotely. However, apart from the missed opportunity of establishing face-to-face relationships, the quality of dialogue or information gathered was unaffected.

Desk research and interview research have been brought together and analysed in the present report for each country.

#### 3. DISSEMINATION

This report will be suitably disseminated to external stakeholders, including by means of webinars and other remote means.

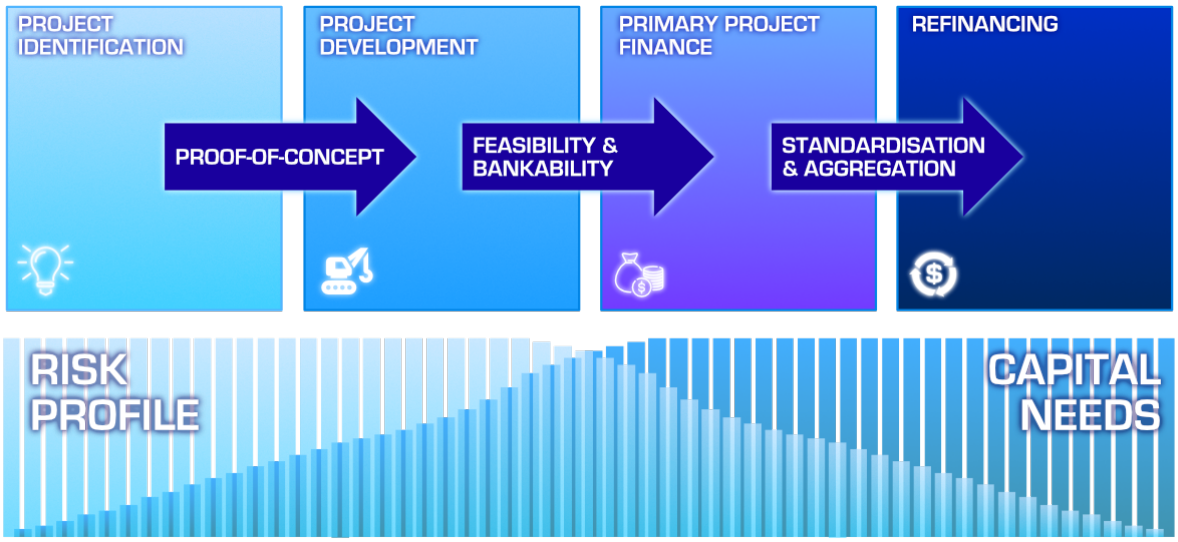
## 1.2 THE CLIMATE FINANCE 'SUPPLY CHAIN'

A key concept in the CFP approach is that there is an identifiable supply chain for climate-related projects, comprising of four main components:

- The **identification** of projects that will help meet a country's NDC and development goals
- the **development** of project concepts into investable proposals
- **Primary financing** of these projects, wherever possible in local capital markets; and
- **Refinancing** of them, where suitable, in international markets (e.g. via green bonds).

The risk profile and capital needs of projects are inversely proportional as they proceed along the chain. Proof of concept will be required to move from project identification to development, feasibility, and bankability to primary project finance and standardisation and aggregation to facilitate refinancing.

*The climate finance supply chain*




Source: CFP team analysis

To work efficiently, projects need access to appropriate finance sources at different stages, e.g.:

- Grants for technical assistance at the outset; and
- Guarantees at the primary finance stage.

An efficient supply chain should deliver a reliable stock of investable projects to local and international finance providers, which is essential if flows of climate and blended finance are to be radically accelerated over the coming decade. However, in many countries, the supply chain has bottlenecks which need to be addressed.

Key challenges are:

- Finance providers and climate policy makers having limited understanding of each other's approaches, terminology, and requirements, resulting in insufficient collaboration between them and a 'siloed' way of working
- Project developers not having an awareness of appropriate kinds of finance for different stages of a project's lifecycle, and/or an inability to access the right finance at the right time; and
- Challenges in convening the necessary actors to create the complex financial instruments and structures needed to de-risk low-carbon projects and to attract commercial finance, particularly in emerging economies.

## 1.3 STRUCTURE OF THIS REPORT

After this introduction, this report is structured as follows.

- **Section 2** contains the country profile, including topography, demography, and economy.
- **Section 3** presents Ethiopia's climate change profile and strategies, with a particular focus on the NDC.
- **Section 4** illustrates the climate finance landscape, including international and domestic sources of finance.
- **Section 5** contains barriers and enablers for finance access and mobilisation across (i) policy and regulatory; (ii) finance and economics; (iii) technology and markets; (iv) information and capacity; and (v) social, cultural, and behavioural.
- **Section 6** presents a deep dive into energy and agriculture, priority sectors for development and climate change in Ethiopia.
- **Section 7** provides concluding remarks and recommendations.
- The annexes contain additional details relating to renewable energy sub-sectors and a list of institutions interviewed.

# 2.COUNTRY PROFILE

Photo Credit: PicturesFromWords

## 2.1 TOPOGRAPHY AND DEMOGRAPHY

Ethiopia is located in Eastern Africa in the southern Red Sea region. It is bordered by Eritrea (to the north), Sudan and South Sudan (to the west), Djibouti and Somalia (to the east), and Kenya (to the south). As Ethiopia is landlocked, it has been using the main port in Djibouti for the last few decades. Its capital city, Addis Ababa, is situated in the centre of the country.

1 Map of Ethiopia


Source: Shutterstock

The total area of the country is 1,104,300 km$^2$. Ethiopia's topography consists of a central high plateau bisected by the Ethiopian segment of the Great Rift Valley into northern and

southern highlands and surrounded by lowlands, more extensive on the east and southeast than on the south and west. The plateau varies from 1,500 to 3,000 metres above sea level and features mountainous uplands separated by deep gorges and river valleys, especially in the north. The highest point is Ras Dashen at 4,620 metres in the northern highlands. In the east, the Denakil Depression, part of the Rift Valley, is 115 metres below sea level in places and is one of the hottest places on earth. A chain of lakes lies in the southern Rift Valley. The largest inland body of water is Lake Tana in the northwest, which is the source of the Blue Nile, Ethiopia's largest river. The diversity of Ethiopia's terrain determines regional variations in climate, natural vegetation, soil composition, and settlement patterns.[1]

Since the 1960s, Ethiopia's population has grown at an average of 2.5% annually, increasing from 22 million people in 1960 to just over 103 million in 2016. Ethiopia's population first doubled to over 44 million in 1988 and then doubled again, reaching over 90 million people in 2011. In 2018, the population reached 109,224,559, making Ethiopia the second most populous nation in Africa (behind Nigeria).[2] The population is predominantly young, with a median age of 19.

The majority of the population live in the highlands of the north and centre of the country, particularly around Addis Ababa, which has a population of 4.79 million. The far east and southeast of the country are sparsely populated. Almost 80% of the population live in rural areas but there is increasing urbanisation, at a rate of 4.63%.

The population is comprised of a diverse mix of more than 13 ethnic and 80 linguistic groups (with 70 mother tongues). The Oromos and Amharas are the largest ethnic and linguistic groups, accounting for over 70% of the population. Amharic is the working language of the federal government. Orthodox Christianity and Islam are the largest religions.

## 2.2 POLITICAL STRUCTURE AND LEGAL SYSTEM

### 2.2.1 POLITICAL STRUCTURE

Ethiopia is a federal parliamentary republic. The President is the head of state, but the position is largely ceremonial, with executive power vested in the Prime Minister. Presidents are elected for a period six years, with a maximum of two terms. The current President, Sahle-Work Zewde, is Ethiopia's first female president.

While Ethiopia is a multi-party system, the legislature has been dominated by a single coalition party for the last three decades. On 1 December 2019, the EPRDF—the coalition that had governed the country since the fall of the Derg regime in 1991—was reformed as the Prosperity Party. The new coalition is comprised of the same members, with the exception of the TPLF.

[1] Library of Congress (2020) Ethiopia—Country Profile, https://www.loc.gov/rr/frd/cs/profiles/Ethiopia.pdf
[2] World Bank (2018) World Bank Data—Ethiopia, https://data.worldbank.org/country/ethiopia?view=chart

The current Prime Minister, Abiy Ahmed, has held office since April 2018 (having previously been leader of the EPRDF). The next general election, due to be held on 29 August 2020, has been delayed due to the Coronavirus pandemic.[3]

Ethiopia is comprised of nine ethnically based regional states: Afar; Gambella; Amhara; Benishangul/Gumaz; Harari; Somali; Oromia; Southern Nations, Nationalities, and Peoples Region; and Tigray, along with two self-governing administrations: Addis Ababa and Dire Dawa. Constitutionally, all nine National Regional States and two City Administrations are autonomous. Except for foreign policy and military and financial matters, each region has its own independent institutional arrangements in its respective regional government (known as bureaus). However, for the sake of maintaining a smooth and effective working relationship, regional states often follow institutional configurations that are almost exactly the same as those at the federal level.[4]

### 2.2.2 LEGAL SYSTEM

Ethiopia uses a civil law legal system combined with procedural laws, principally inspired by the civil and common law system. Sources of Ethiopian law include the Constitution, international treaties, proclamations, decrees, civil codes, regulations and directives, and customary laws. National laws are issued as proclamations by the House of People's Representatives.

The highest court is the Federal Supreme Court. A ruling of the Cassation Division of the Federal Supreme Court has a binding effect on the federal and state courts. The Constitution provides legal status to some pre-existing religious and customary courts and gives federal and regional legislatures the authority to recognise other courts.

Ethiopian law currently limits the areas in which foreign investors can engage and requires them to obtain an investment permit before starting a business in Ethiopia. This limitation excludes the Ethiopian diaspora, referring to Ethiopians and people of Ethiopian descent with an Ethiopian birth certificate. Likewise, foreign investors intending to buy an existing enterprise to operate it or purchase shares must obtain prior approval from the Investment Commission.[5]

Ethiopia's current Constitution came into effect on 21 August 1995. Under the Constitution, all land is owned by the state, which provides long-term leases to tenants. In practice, however, title rights in urban areas are poorly regulated and it has been acknowledged that this opens up space for corruption, especially in rural areas.
The Constitution prescribes to all citizens the right to a clean and healthy environment. The state has a duty to protect the environment and to ensure inclusive and sustainable development by engaging citizens in the planning and implementation of policies and projects.

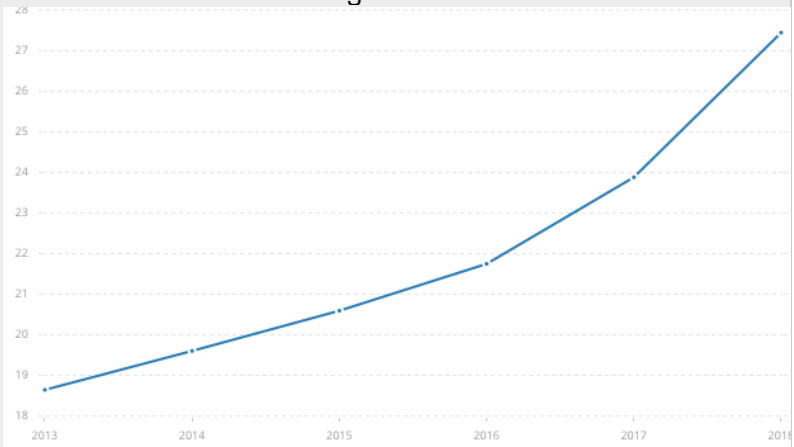
[3] Quartz Africa (1st April 2020)
[4] SNV (May 2018)
[5] Haile et al (June 2020)

## 2.3 ECONOMY

*Table 1 Key economic and financial indicators*

| Indicator | Value |
|---|---|
| **Population (World Bank)** | 109,224,559 (in 2018)[6] |
| **Age demographics (CIA)** | 0–14 years: 43.21% (male 23,494,593/female 23,336,508)<br><br>15–24 years: 20.18% (male 10,857,968/female 11,011,100)<br><br>25–54 years: 29.73% (male 15,978,384/female 16,247,086)<br><br>55–64 years: 3.92% (male 2,059,129/female 2,185,814)<br><br>65 years and over: 2.97% (male 1,445,547/female 1,770,262) (2018 est.)[7] |
| **Urban/rural split and urbanisation rate (CIA)** | Urban: 21.2% (2019 data)<br>Rural: 79.8% rural (2019 data)<br>Urbanisation rate = 4.63 (average based on data from 2015 to 2020) |
| **Key industries (UN data)** | Key economic sectors (2016 estimates):[8]<br>Agriculture (% of GVA): 36.8%<br>Industry (% of GVA): 21%<br>Services and other activity (% of GVA): 42.2% |
| **Form of government (CIA)** | Federal Parliamentary Republic |
| **Credit rating (S&P)** | Standard & Poor's credit rating for Ethiopia stands at B/B with a stable outlook[9] (set on 29th March 2019). |
| **Gross Domestic Product (GDP) (World Bank)** | US $84.356 billion in 2018 or US $16,791.704 *per capita* in 2018[10] |
| **Competitive Index (WEF)** | Ranked 126/141 countries in 2019 rankings[11] |
| **Transparency Index (CPI)** | Score 34/100 (scale 1 (lowest) – 100 (highest))<br>Ranked 114/180 countries in 2018[12] |
| **Human Development Index** | 0.470/1 in 2019[13] (scale 0 (lowest) – 1 (highest)) |

[6] World Bank Data - https://data.worldbank.org/country/ethiopia
[7] Central Intelligence Agency (2018)
[8] UN Data - http://data.un.org/en/iso/et.html
[9] Standard and Poors (S&P) (2020) S&P Global Ratings, www.standardandpoors.com/en_US/web/guest/ratings/entity/-/org-details/sectorCode/SOV/entityId/560888
[10] World Bank Data - https://data.worldbank.org/country/ethiopia
[11] K. Schwab (2019)
[12] Transparency International (2018)
[13] UNDP (2019) - http://hdr.undp.org/en/countries/profiles/ETH

| | |
|---|---|
| **Currency appreciation/depreciations vs US $ in the last five years (World Bank)** | Official exchange rate for Ethiopian *birr* per US $ from 2013 to 2018. The average for 2018 is 27.43[14]<br>  |
| **National stock market size** | Ethiopia does not currently have a stock market but there are plans to launch the Addis Ababa Stock Exchange (a domestic exchange) in 2020[15] |

## 2.3.1 OVERVIEW AND KEY SECTORS

Whilst Ethiopia remains one of the poorest countries in Africa, with a *per capita* income of US $790, in recent years it has been one of the fastest growing economies in the region: Between 2007/08 to 2017/18 Ethiopia's economy grew on average of 9.9% per year, compared to a regional average of 5.4%. Real GDP for 2018/19 is estimated to have grown by 9%.[16] Recent growth has been driven by government investment in infrastructure, as well as progress in the agriculture and service sectors.[17]

The services sector recently became the principal source of foreign exchange earnings, largely driven by the state-run Ethiopian Airlines.

In terms of trade, coffee still accounts for the largest proportion of export revenues, but Ethiopia is diversifying its exports, with commodities such as gold, sesame, livestock, and horticulture products becoming increasingly important. Ethiopia also has small reserves of platinum, copper, and natural gas. Currently, over 90% of Ethiopia's import and export trade passes through Djibouti. The Addis Ababa–Djibouti Railway, which officially began operations in January 2018, will significantly reduce the costs of imports and exports.[18]

Agriculture is the backbone of Ethiopia's economy, employing over 70% of the population. Many Ethiopians work in subsistence agriculture and are thus vulnerable to climate-related shocks. Agriculture yields in Ethiopia are low by regional standards and this low agricultural productivity results in high levels of food insecurity and some of the highest burdens of hunger and undernutrition in Africa. Even as Ethiopia continues its development and seeks to transition its economy toward higher value-add sectors of manufacturing and services,

[14] World Bank Data (2016) Official Exchange Rate (LCU per US $, period average) Ethiopia, https://data.worldbank.org/indicator/PA.NUS.FCRF?end=2018&locations=ET&start=2013&view=chart
[15] Financial Times (24th February 2019)
[16] World Bank (n.d.)
[17] World Bank (23rd November 2015)
[18] The Guardian (2016)

agriculture will remain a crucial segment of economic growth and an important component of Ethiopia's development trajectory.

### 2.3.2 ECONOMIC POLICIES AND STRATEGIES

The government has set an ambitious target of achieving lower middle-income status by 2025. In the last decade, the government's development strategy has been implemented through five-year GTPs, which set ambitious targets across key sectors. GTP II started in 2015 and will run until 2020. Following the end of GTP II, implementation of the 10-Year Development Plan will commence in 2020.

GTP II aims to transform Ethiopia's economic structure away from agriculture towards industry and exports. This will be achieved by expanding physical infrastructure through public investment, transforming the country into a manufacturing hub. GTP II targets an average of 11% GDP growth annually and an average expansion of 20% in the industrial sector to create more jobs. Ethiopia is also planning to increase installed power generation capacity by 8,320 MW by building three major dams and diversifying its energy mix to other sources of renewable energy.

Ethiopia has a critical need to industrialise and provide employment opportunities for its young population. Developing an internationally competitive manufacturing sector is seen as key to Ethiopia's aspirations.

The Government of Ethiopia has prioritised the development of industrial parks and export processing zones. The Industrial Parks Strategy aims to create industrial zones with business-friendly incentives for land acquisition, electricity supply, and financing to attract increased FDI in Ethiopia's manufacturing sector.[19] So far, 50 parks have been created. The majority of investors are foreign—with the most coming from China—and focus on light manufacturing.

### 2.3.3 ECONOMIC LIBERALISATION

For the last few decades the state has maintained control of key areas of the economy: telecommunications, power, banking, and insurance are all state-owned and limited to domestic investors. Under this system, Ethiopia relied on borrowing from domestic banks to fund its investment programmes.

While this strategy has enabled Ethiopia to enjoy decades of high growth and finance one of Africa's largest infrastructure builds, it has recently led to the country encountering capacity constraints and chronic shortages of foreign exchange.[20] By-products of a tightly-controlled state economy are an underdeveloped private sector subject to limited competition and a financial sector with limited capacity. Furthermore, Ethiopia's negative trade deficit has led to persistent foreign currency shortages. This is of concern to investors, as it affects the government's ability to pay debt obligations and creates challenges for foreign investors when trying to repatriate profits.

[19] World Bank (2015) 4th Economic Update: Growth and Transformation through Manufacturing
[20] Financial Times (2019) IMF poised to approve landmark US $3 billion loan for Ethiopia, 11 December, www.ft.com/content/81993af2-1c23-11ea-9186-7348c2f183af

Since taking office in 2018, Prime Minister Abiy Ahmed has pledged to reform Ethiopia's economy and to lead Ethiopia in a transition to a more open, market-oriented economy. The **Homegrown Economic Agenda** (announced in September 2019) is an ambitious mix of macroeconomic, structural, and sectoral policies to address vulnerabilities and tackle structural bottlenecks currently inhibiting private sector activity. Short-term plans include the liberalisation of key sectors,[21] starting with telecommunications, in which two new licences are due to be auctioned in 2020.[22]

The government (with assistance from MDBs and development partners) has been working to strengthen existing regulations and develop new regulations in key areas. The **PPP Framework (2018)** and **New Investment Law (2020)** are critical steps in opening up the country to international private investment.

Measures are also being taken to address debt vulnerabilities and inflation (15% in 2019).[23] Public expenditure restraints and tighter monetary policy are expected to contribute to a gradual reduction in inflation. Foreign exchange reserves are expected to improve to around US $4 billion by end 2019/20, sufficient to cover two months of prospective imports, due to higher external financing flows.[24]

A recently announced International Monetary Fund (IMF) programme (including a US $2.9 billion loan) to provide balance of payments support and technical assistance for the liberalisation agenda should be viewed as a stamp of approval for the government's reform agenda.[25] The World Bank has also showed its approval for this agenda by approving funding of US $500 million (US $312.2 million grant and US $187.8 million credit) from the International Development Association in March 2019.[26] This should give confidence to new market entrants as it indicates that Ethiopia is committed to liberalising its economy.

Ethiopia's economic growth is due to slow this year as a result of the COVID-19 pandemic. The Jobs Creation Commission has estimated that close to 1.4 million workers will be affected as a result of the pandemic, with the services and manufacturing sectors being the hardest hit areas of the economy so far.[27] Some industrial parks have already laid off workers due to a slump in demand. The fall in demand for exports combined with domestic containment measures will slow growth and weaken external and fiscal accounts. The pandemic has created an urgent balance of payments need. The IMF is helping Ethiopia by providing US $411 million in emergency assistance and debt service relief under the Catastrophe Containment and Relief Trust.[28]

[21] Financial Times (8th August 2019)
[22] Reuters (February 2020)
[23] World Bank data (September 2020)
[24] IMF (28th January 2020)
[25] IMF (11th December 2019)
[26] World Bank (19th March 2019)
[27] IMF (6th May 2020)
[28] IMF (30th April 2020)

# 3.CLIMATE CHANGE PROFILE AND STRATEGIES

Photo Credit: Ashwin Mudigonda

## 3.1 CLIMATE CHANGE VULNERABILITY AND IMPACTS

Temperatures and rainfall patterns in Ethiopia vary widely depending on the time of year and area of the country. The highland areas generally have temperate conditions, with daytime temperatures between 16°C and 30°C and cool nights. In areas below 1,500 metres (such as river valleys, the Denakil Depression, and the Ogaden in the southeast), daytime temperatures range from 30°C to 50°C and conditions can be very humid. Rainfall is determined by seasonal shifts in monsoon winds. The highland areas receive the majority of rainfall, with the rainy season falling between June and September, and a second wet season occurring in parts of northern and central Ethiopia between February and May. The dryland areas of the country, particularly the southeast, receive very little rainfall throughout the year. The country's exposure to drought and flooding is heavily influenced by the El Niño/La Niña phenomenon.[29]

As a result of various environmental issues—including deforestation, over-grazing, soil erosion, desertification, water shortages, and pollution—Ethiopia is already experiencing effects of climate change, including increases in average temperature and changes in rainfall patterns. About 50% of Ethiopia's highlands are currently defined as degraded with declining productivity due to the combined effect of the human and environmental impacts specified above. These impacts are costing the country about 2%–3% of its annual agricultural GDP (which is significant, given that over 70% of the population depends on agriculture to make a living). Changes in rainfall associated with worldwide weather patterns resulted in the worst drought in 30 years in 2015–16, creating food insecurity for millions of Ethiopians.[30] Extreme fluctuations in weather are projected in the future, including increasing instances of drought and flooding.

The Intergovernmental Panel on Climate Change (IPCC) has confirmed that trends of extreme weather conditions are being experienced in Ethiopia, with climate models showing 'warming in all four seasons across the country, which may cause a higher frequency of heat waves as well as higher rates of evaporation'. Future projections of increased rainfall (in areas of complex topography such as the Ethiopian highlands) may

[29] Central Intelligence Agency (2020) www.cia.gov/library/publications/the-world-factbook/geos/et.html
[30] GCF (2020) www.greenclimate.fund/project/fp058

not necessarily be a boon for the agricultural sector, with the IPCC cautioning damage fragile crops and instances of floods.[31]

Increasing climate resilience is thus an urgent priority for Ethiopia. At the same time, the country has vast potential for achieving low-carbon status: it is rich in forests and has access to a range of renewable energy resources including hydro, solar, wind, and geothermal energy. The government has demonstrated strong commitment to achieving climate resilient growth, as reflected in the strategic initiatives detailed below.

## 3.2 CRGE

Climate change is a cross-cutting issue within the GTPs and the Government of Ethiopia's vision of achieving middle income status by 2025. Ethiopia is one of the few countries to have formally merged its aims of developing a green economy with building greater resilience to climate change under a single policy framework, the CRGE initiative.

CRGE maps Ethiopia's path to attaining three interlinked goals of economic growth, net-zero emissions, and resilience building, and is formed of four pillars, to:

1. Improve crop and livestock practices
2. Protect and re-establish forests for economic, ecosystem, and carbon stocks
3. Generate electricity from renewable sources for domestic and regional markets; and
4. Transition to modern and energy-efficient technologies in transport, industry, and buildings.

The CRGE consists of several elements: the CRGE Strategy, an institutional structure for CRGE implementation, and the CRGE Facility.

### 3.2.1 THE CRGE STRATEGY

The CRGE Strategy consists of an integrated planning process under which sector investment plans are being developed. So far, the green economy investment plans have been completed for seven sectors with the highest potential for greenhouse gas (GHG) abatement: power supply; buildings and green cities; forestry (REDD+); agricultural/soil-based emissions; livestock; transport; and industry.[32]

Over 60 green economy initiatives have been identified which have the potential to help reduce GHG emission levels in line with 2030 targets. Of these, four have been prioritised as fast-track initiatives:

- Development of hydropower capacity[33]
- Large-scale dissemination of rural cookstoves

[31] Niang et al (2014)
[32] FDRE (December 2012)
[33] Ethiopia's hydro-electric projects have created regional tensions with neighbouring Egypt and Sudan. Egypt is concerned that the projects will allow Ethiopia to control the flow of Nile water downstream, which is a vital resource for Egyptian agriculture. The crux of the dispute is the speed at which Ethiopia fills the dam. The longer it takes to fill the dam, the less impact there will be on the level of the river. BBC (13th January 2020)

- Improving efficiency in livestock production; and
- REDD+.

The selection of these four initiatives is a rational policy prioritisation as they offer the prospect of immediate economic growth and large carbon abatement potential and are attractive to international climate finance funding sources.

### 3.2.2 INSTITUTIONAL STRUCTURE FOR CRGE IMPLEMENTATION

Oversight and responsibility for the realisation of the CRGE vision are tasked to the Environmental Council. This council is chaired by the Prime Minister's Office and is comprised of members from federal ministries, presidents of regional states and the private sector, and civil society representatives. Line ministries have also established CRGE units, with overall responsibility for coordinating and facilitating the planning and implementation of sectoral CRGE Strategies. The Environment Forest and Climate Change Commission (formerly the Ministry of Environment, Forest, and Climate Change, and previously the Environmental Protection Authority) is responsible for the technical coordination, implementation, and evaluation of the strategy.

A CRGE Registry has been established to compile relevant information regarding ongoing climate change-related activities in Ethiopia and to make available relevant consolidated climate data. Additionally, a National Monitoring, Reporting, and Verification (MRV) system has been launched to monitor results. Both the Registry and the MRV system have been developed in line with international standards.

### 3.2.3 THE CRGE FACILITY

Delivery of the CRGE would require investment of **US $7.5 billion per year** to make the economy climate-smart and to ensure the sustainability of economic growth between 2010 and 2030 (i.e. a total of US $150 billion, including US $80 billion from capital investments and US $70 billion operating and programme expenses).[34] Accordingly, in 2011, the government established the CRGE Facility as the primary mechanism to mobilise, access, and combine domestic and international public and private sources of finance to support the institution building and implementation of Ethiopia's CRGE Strategy.[35]

The CRGE Facility is comprised of a financial and a technical wing.

i. MOFEC is responsible for financial management (including the development, implementation, and monitoring of the Facility's portfolio).
ii. A team housed at the Environment, Forest, and Climate Change Commission (EFCCC) is responsible for technical aspects, including coordinating the CRGE planning process and implementing entities (sector ministries) that are responsible for identifying CRGE investment priorities. It also coordinates the activities of executing entities (public, private, and civil society organisations) that are responsible for managing the spending of CRGE investments.[36]

[34] Eshetu et al (2014)
[35] FDRE (December 2012)
[36] Ibid

The current CRGE project budget is US $195 million through 2023, with an additional budget of US $100 million expected by 2021.

The CRGE Facility enables Ethiopia to manage climate funds within a single coherent system that lets investors engage and determine how best to invest to support the country's CRGE objectives. This programmatic approach aims to minimise transaction costs, fragmentation, and duplication associated with funding unconnected projects. Through the CRGE Facility, the Government of Ethiopia deploys a range of financial instruments to support investments in CRGE initiatives, including grants, concessional loans, and results-based payments.[37]

The Facility has been designed to draw down and pool multiple sources of international and national finance, thereby mobilising resources efficiently. It has access to bilateral sources of climate finance and has applied for accreditation to the AF under the United Nations Framework Convention on Climate Change (UNFCCC) order to access multilateral sources directly.

MOFEC received accreditation from GCF in March 2016, so the CRGE Facility is able to access funding from this source. While MOFEC is currently accredited only for small projects (with investment sizes between US $10 million–US $50 million), it is the process of applying to upgrade its accreditation that would allow it to access funding for larger projects.

## 3.3 ETHIOPIA'S NDC

The Government of Ethiopia submitted its Intended NDC in 2015.

Ethiopia's NDC has four pillars, to:

i. Enhance crop and livestock productivity
ii. Protect and re-establish forests for economic benefits, ecosystem services, and $CO_2$ sequestration
iii. Increase electricity supply from renewable energy; and
iv. Promote the adoption of modern energy-efficient technologies.

Full implementation of the NDC is conditional on finance, technology transfer, and capacity building support under the framework of Ethiopia's CRGE Strategy, which is integrated in the current GTP II.

The government is currently working to integrate an enhanced NDC with the 10-Year Development Plan. The NDC revision is being prepared with financial support from the NDC Partnership's Climate Action Enhancement Package and the NDC Partnership.

Ethiopia's NDC prioritises both adaptation and mitigation measures, as follows.

[37] IIED (April 2014)

### 3.3.1 ADAPTATION

Ethiopia is committed to a socially inclusive response to climate change, aiming to integrate actions that improve the status of women and the welfare of children and protect the wellbeing of elderly people, people with disabilities, and environmental refugees.

The main effort up to and beyond 2020 is to increase resilience and reduce the vulnerability of livelihoods and landscapes to drought and flooding. The long-term goal is to ensure that adaptation to climate change is fully mainstreamed into all development activities. This will reduce vulnerability and contribute to an economic growth path that is resilient to climate change and extreme weather.

Within the NDC, of prominence is Ethiopia's National Adaptation Plan (NAP-ETH) (2019), which seeks to integrate existing climate change policy frameworks, including national strategies such as the CRGE and GTP II, sectoral plans, and regional adaptation plans. NAP-ETH focuses on sectors that have been identified as most vulnerable, namely agriculture, forestry, health, transport, power, industry, water, and urban development. Within these sectors, 18 adaptation options have been identified for implementation at all levels.
The estimated cost of implementing NAP-ETH over the next 15 years is approximately US $6 billion per year, with these funds coming from a combination of sources.[38] NAP-ETH will be built into Ethiopia's updated 2020 NDC.

Additionally, several large-scale, sustainable land and natural resource management programmes are ongoing, including the Sustainable Land Management Programme and the Productive Safety Net Programme, which contribute to building climate resilience. The National Policy and Strategy on Disaster Risk Management 2013 is a 10-year plan, which seeks to increase Ethiopia's capacity to withstand disaster-related impacts and hazards.

Finally, eight of Ethiopia's 11 administrative regions have produced their own climate change adaptation policies. Adaptation policies are shaped by each region's reality. All the plans identify agriculture and food security as a priority, along with fresh water and natural resource management.[39]

### 3.3.2 MITIGATION

Ethiopia's NDC sets an ambitious target of cutting GHG emissions by 64% by 2030—a reduction of 255 Mt $CO_2e$ from the projected business as usual scenario. This includes:

- 90 Mt $CO_2e$ from agriculture
- 130 Mt $CO_2e$ from forestry
- 20 Mt $CO_2e$ from industry
- 10 Mt $CO_2e$ from transport; and
- 5 Mt $CO_2e$ from buildings.

The above does not include the reduction of 19 Mt $CO_2e$ in neighbouring countries due to the export of electric power to them from Ethiopia.

[38] FDRE (2019), Ethiopia's National Adaptation Plan
[39] Echeverria and Terton (2016)

## 3.4 NATIONAL REDD+ STRATEGY

The forestry sector accounts for almost a quarter of total projected emissions from Ethiopia in 2030. Half this figure is attributable to deforestation due to agricultural expansion and the other half comes from forest degradation due to wood used for household fuel consumption (particularly for charcoal production). To combat this, Ethiopia has established a REDD+ policy, the goal of which is to reduce deforestation and forest degradation and improve sustainable management of forests to increase carbon stocks. The forestry sector is intended to contribute 50% to the total NDC emission reduction.[40] Ethiopia submitted its Forest Reference Level for REDD+ in January 2016.[41]

GGGI has supported the CRGE Facility with the mobilisation of US $60 million from the AF and GCF and US $75 million from bilateral development partners towards Ethiopia's large-scale REDD+ implementation programme.

[40] REDD+ Ethiopia (n.d.) REDD+ National Strategy, https://ethiopiareddplus.gov.et/redd-readiness/redd-national-strategy/
[41] FDRE (2016) Ethiopia's Forest Reference Level Submission to the UNFCCC, https://redd.unfccc.int/files/2016_submission_frel_ethiopia.pdf

# 4. CLIMATE FINANCE LANDSCAPE

Photo Credit: plb06

As indicated above, the implementation of the CRGE Strategy is estimated to cost a total of US $150 billion (an average of US $7.5 billion per year during the 20-year implementation period).

The following sub-sections outline types of financial institutions and mechanisms involved in the financing and implementation of Ethiopia's CRGE Strategy, sub-divided into international and domestic sources of finance.

## 4.1 INTERNATIONAL SOURCES OF FINANCE

ODA as a whole has seen an upward trend in the last decade. Prior to 2012 ODA was under US $1 billion. In 2012 it reached US $3.24 billion and rose to US $4.93 billion in 2018. The United States is the largest donor, with others including the European Union, the United Kingdom, Germany, France, Canada, Japan, and Saudi Arabia.

### 4.1.1 CLIMATE FUNDS

Between 2003 and 2017, Ethiopia was the fifth highest recipient of approved climate finance in Africa (behind South Africa, Tanzania, Mozambique, and Niger).[42]

#### GCF

So far, GCF has provided US $227.4 million to four projects, with a total project value of US $551.6 million. Of these, two projects are specific to Ethiopia:

- The Resilient Landscapes and Livelihoods Project (US $107.2 million in loans and US $58.1 million grants); and
- Responding to the increasing risk of drought: building gender-responsive resilience of the most vulnerable communities (US $45 million in grants).

The other two are multi-country programmes.

[42] ODI (2020) Climate Funds Update, https://climatefundsupdate.org

As mentioned above, there is a GCF project unit within MOFEC, which is accredited to GCF, but only for projects up to US $50 million. The project team is currently in the process of applying to upgrade MOFEC's accreditation to enable access to higher levels of funding for larger projects.

Additionally, MOFEC is applying for accreditation for DBE to access the GCF Private Sector Facility.

#### GLOBAL ENVIRONMENT FACILITY

GEF has provided grant funding upwards of US $120 million to Ethiopia through the Least Developed Country Fund and the Special Climate Change Fund, including:

- Promoting Sustainable RETs for Household and Productive Uses
- A capacity building programme to comply with the Paris Agreement and implement its transparency requirements at the national level; and
- Climate Change Adaptation in the lowland ecosystems of Ethiopia.[43]

#### THE ADAPTATION FUND

MOFEC is accredited to receive funding from the AF and acts as the executing authority for allocated funding. Initiatives funded under the AF umbrella include:

- Climate-Smart Integrated Rural Development Project: grant funding of US $9.9 million to increase resilience to recurrent droughts in seven agro-ecological landscapes in Ethiopia, using an integrated water, agriculture, and natural resource management approach; and
- Agricultural Climate Resilience Enhancement Initiative: launched in 2018 to provide grant funding of US $6.8 million to build the resilience of smallholder farmers and pastoralists in the Horn of Africa.

### 4.1.2 MULTILATERAL INSTITUTIONS

#### THE WORLD BANK

The World Bank has several active programmes in Ethiopia.

- Its REGREP provides institutional support, such as advisory assistance for legal and regulatory reform in the power sector, capacity development for conducting auctions and power procurement, and training on PPPs for EEP and other power sector agencies. Under REGREP the World Bank also provides payment guarantees to cover EEP's power purchase obligations and loan guarantees to support the IPP developers bidding for projects. This guarantee facility has been used as a resource for both the Metehara and Scaling Solar initiatives.

- The CALM programme has been designed to help finance sustainable land management initiatives in Ethiopia. A US $500 million grant has been approved and will be distributed by way of results-based payments over five years.

- Through its *infoDev* programme, the World Bank launched CIC in 2013 to provide support to local businesses and deploy climate-friendly technologies and create green

[43] Global Environment Facility (2020) - https://www.thegef.org/country/ethiopia

jobs. The original launch was a grant agreement of US $5 million signed between the World Bank and Addis Ababa University. The CIC targeted 20 sustainable climate technology ventures in its first year and more than 200 over the next decade, leading to the creation of as many as 12,000 direct and indirect jobs.[44]

- The Climate Business Innovation Network was launched in Ethiopia in 2016. The network is designed to bring global resources to clean technology entrepreneurs in developing countries. The network will spread models to enable climate innovation; spread disruptive green business models; and crowd in global sources of finance for climate technology innovation.[45]

**AFDB**

AfDB has provided grants and concessional debt for a number of climate-relevant projects. Examples include:

- a US $10 million concessional loan (through the Clean Technology Fund) for the development of the Tulu Moye geothermal power project
- US $95 million in loans and grants for the development of power interconnection between Ethiopia and Djibouti; and
- Grants to agricultural businesses through the Agriculture Fast-Track fund.

**IFAD**

In the last few decades, IFAD has provided over US $795 million (through grants and debt) for rural development projects in Ethiopia. In January 2020, IFAD announced the approval of US $305 million for RUFIP III. This funding will be used to support Ethiopia's most vulnerable farmers, increase access to financial services, and build resilience in rural areas most affected by climate change.

**GGGI**

GGGI has supported the Government of Ethiopia in mainstreaming implementation of the CRGE Strategy. It was involved in the establishment of the CRGE Facility and continues to second experts to a number of ministries.

GGGI continues to support the government in the mobilisation of finance for CRGE implementation. In particular, it supported MOFEC in applying for accreditation to GCF and the AF.

**UNDP**

UNDP has supported the implementation of a number of projects, with projects currently in hand including:

- Promoting Sustainable RETs for Household Uses: a private sector-driven and market-based approach towards the promotion of renewable energy technologies for rural communities in Ethiopia. The project includes the establishment of a partial credit risk guarantee fund, managed by DBE, as a finance mechanism. As noted above, funding is provided by GEF; and

[44] World Bank (2nd December 2013)
[45] World Bank (16th November 2016)

- Urban NAMA Compost: an initiative focusing on promoting practices and strengthening the regulatory and institutional coordination mechanisms to increase the use of integrated solid waste management and related urban green infrastructure in Ethiopian municipalities. A voluntary carbon offset mechanism was established to attract further private finance for this initiative.

UNDP has also supported government ministries in the development of regulations and technology standardisation (including for clean cooking and solar home systems). It is also providing capacity building support to DBE and commercial banks.

### 4.1.3 BILATERAL DEVELOPMENT PARTNERS

#### GERMANY

**GIZ**'s Energy Coordination Office has been working with MOWIE since 2010 to promote renewable energy in Ethiopia. Projects to date include:

- Installation of 100 PV solar systems in off-grid and remote public health centres and four community centres
- Ethiopia's first solar technology training centre established at Selam Vocational training centre in Addis Ababa
- Construction of four pilot micro-hydropower plants in three villages, with a total capacity of 125 kW; and
- establishment, training, and capacity building for more than 650 small-scale producers of improved, energy-efficient cooking stoves in 310 districts and seven regions, which has led to the commercial distribution of an additional 500,000 cookstoves.

Additionally, GIZ's EnDev programme is also active in Ethiopia. It has established a 10-year, multi-donor energy access partnership, with MOWIE serving as the lead execution agency. The overall aim of EnDev Ethiopia is to support the establishment of self-sustaining markets for modern energy supply, particularly in rural areas. The programme focuses on renewable energy technologies, including energy-efficient cookstoves; PV systems; and converting traditional water mills to off-grid electricity mini-grids.

#### NORWAY

Norway is contributing to reforestation through their forest programme and the UNREDD programme. They are also contributing NOK 305 million (US $33.1 million) over five years to Ethiopia's Sustainable Land Management Programme.

Norway has also provided funding to promote climate-smart agriculture, forest protection, and land rehabilitation through the World Bank's BioCarbon Fund. In addition, through their Energy+ programme, Norway and other partners have helped fund the manufacture and sale of approximately 1.5 million energy-efficient cookstoves.

### THE UNITED KINGDOM

Since 2011, the United Kingdom has provided more than £139 million (US $181.8 million) of ODA to Ethiopia, making the country the largest recipient of such funding.[46]

The United Kingdom's **Department for International Development (DFID)** has provided funding through the World Bank's BioCarbon Fund to support the CRGE Facility in the promotion of climate-smart agriculture, forest protection and land rehabilitation. Additionally, of particular relevance to climate finance, DFID has supported MOFEC to develop a climate finance tracking mechanism.

### THE UNITED STATES OF AMERICA

The United States **DFC** (previously OPIC) provides risk guarantees for a range of projects. It has also pledged US $5 billion to support private sector reform over the next three to five years, highlighting a particular interest in the geothermal sector.[47]

**The United States Agency for International Development (USAID) Power Africa** is providing support to the development of Ethiopia's energy sector. It has assisted the government with transaction advisory support on IPP projects, including contract drafting and the negotiation of Corbetti and Tulu Moye geothermal projects and the competitively tendered Metehara solar power project.

Power Africa is supporting EEU to meet its goal of installing over one million new connections per year through supply chain management, development of distribution design and construction standards, and geospatial mapping of medium voltage distribution lines to feed into a distribution planning framework that will help prioritise expansion and densification projects. Power Africa is also conducting a smart grid study to be followed by a smart grid pilot project and developing a 'metres-to-cash' process for the utility to reduce commercial losses. Power Africa also supports off-grid electrification solutions for private sector investment.

Power Africa has further assisted the Government of Ethiopia with developing the legal and regulatory IPP framework, strengthening the enabling environment, and lowering risks for private investors. It is also strengthening the energy regulator's capacity to perform its functions, including issuance of licences and permits for IPPs and private sector off-grid electrification, development of accounting standards to meet the needs of private sector investors (International Finance and Reporting Standards), tariff rate determination (Uniform System of Accounts), and approval of tariff rates.[48]

In December 2019, USAID announced a partnership with Awash Bank, through which USAID would provide US $6.4 million in guarantees to enable Awash Bank to expand its loan portfolio to smallholders and SMEs. This is part of a wider effort by development partners to build the capacity of local banks and incentivise them to invest in agriculture.

[46] Carbon Brief (10th October 2017)
[47] Financial Times (5th March 2020)
[48] USAID (2020) Ethiopia—Power Africa Factsheet, April, www.usaid.gov/powerafrica/ethiopia

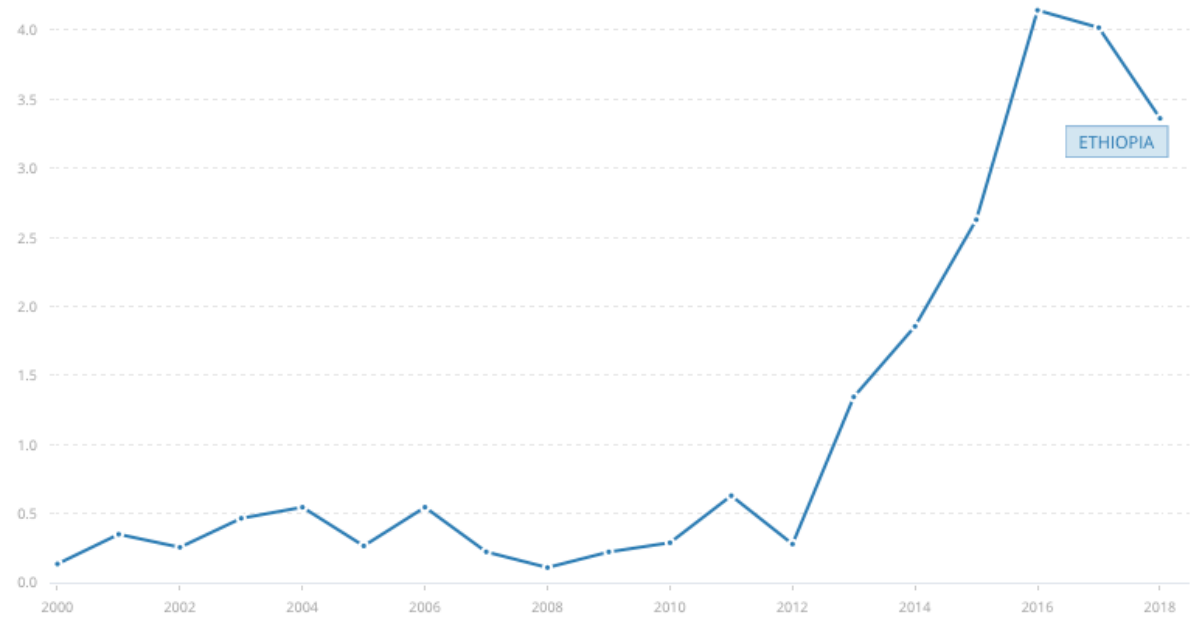
### 4.1.4 FDI

FDI has risen exponentially in the last decade, from US $279 million in 2012 to as high as US $4.1 billion in 2016. FDI for 2019 was US $2.5 billion.

China is the largest contributor to Ethiopia's FDI, accounting for approximately 60% of the total. The majority of Chinese investment goes to transport, power, sugar/food processing, and industrial parks. In the power sector, China has provided debt finance (through China Ex-Im Bank) for a number of renewable energy projects, including the construction of three wind farms.

In size, China's investments are followed by the United States, India, and Saudi Arabia. Additionally, inflows are diversifying, with increasing interest from France, Italy, the United Kingdom, Turkey, and the United Arab Emirates. The Ethiopian Investment Commission has projected increases in FDI of up to US $5.1 billion in the next few years.

*Figure 1 FDI to Ethiopia: net inflows 2000–18 (US $ billion)*




*Source: World Bank data*

### 4.1.5 COMMERCIAL BANKS

Ethiopian law does not currently allow international commercial banks to operate in the country.

### 4.1.6 INSTITUTIONAL INVESTORS

Ethiopian law does not currently allow international institutional investors, such as international insurance and pensions companies, to operate in the country.

### 4.1.7 PRIVATE EQUITY AND VENTURE CAPITAL

Ethiopia's private equity and venture capital market is still very small, with only a handful of firms making investments.

The **Schulze Global Ethiopia Growth and Transformation Fund I**, launched in 2012 to provide investment to businesses involved in agro-processing, manufacturing, and healthcare, was the first fund focusing on Ethiopian SMEs. The fund was initially managed by SGI Frontier Capital, which has since (2018) been acquired by Cerberus Capital Management.

More recently, **Cepheus Growth Capital Partners** (a private equity firm based in Addis Ababa) has launched the Cepheus Growth Fund I. The fund provides growth capital to SMEs in Ethiopia's manufacturing, consumer services, and agriculture sectors. Investments made will range from US $5 million to US $15 million.
Investment for Cepheus Growth Fund I was provided by CDC, Norfund, and the European Investment Bank. The fund was the first in Ethiopia to attract a significant amount of local investment (through family offices and high net-worth individuals). The first round of investing closed in February 2018, raising a total of US $51 million.

### 4.1.8 IMPACT FUNDS

The **CDC Group**, the United Kingdom's private sector-oriented DFI, owned by DFID, has invested US $15 million in each of two private equity funds indicated above.

### 4.1.9 NGOS AND PHILANTHROPIC ORGANISATIONS

There is no official record or database of NGOs or philanthropic organisations, and it is therefore challenging to identify those operating in the climate change sector in Ethiopia. Examples of these include:

- Oxfam, with projects in sustainable livelihoods, WASH, agriculture, and climate research, among others
- WaterAid, focusing on providing WASH services; and
- The Rockefeller Foundation, operating from the regional HQ in Nairobi.

## 4.2 DOMESTIC SOURCES OF FINANCE

### 4.2.1 GOVERNMENT BUDGET

The climate finance tracking system that is currently being developed is expected to provide clarity on the various finance sources and destinations, including government budget allocated to climate change projects. The last available information is that government funding on climate change-related development expenditures in 2011/12 accounted for 80% of the expenditure; donor support accounted for 20%.[49]

Additionally, agriculture accounts for between 15% and 17% of the national budget.[50]

[49] Eshetu et al (2014)
[50] International Maize and Wheat Improvement Centre (2015)

### 4.2.2 FORMAL FINANCIAL INSTITUTIONS

The domestic banking sector provides the vast majority of credit in Ethiopia. It consists of one state-owned development bank (DBE), two state-owned commercial banks (Commercial Bank of Ethiopia and the Construction and Business Bank), and between 15 and 20 smaller private banks. The number of private commercial banks has consistently grown since they were granted access to the banking market in 1994.

DBE (formerly the Agricultural and Industrial Development Bank) operates as a specialised state-owned development financial institution in the country. The bank aims to promote Ethiopia's economic development by financing priority areas such as commercial agriculture, agro-processing, manufacturing, and the mining and extractive industries (mainly export-focused), and also provides lease financing for SMEs. It oversees around 32 branches throughout the country. Internationally, it is recognised as an important on-lending channel for development programmes financed by bilateral and multilateral sources.[51]

DBE works as implementing agency for the donor-financed RUFIP. It channels RUFIP revolving funds at low interest rate (8.5%) to MFIs to on-lend to microfinance beneficiaries.

The government-owned Commercial Bank of Ethiopia is the dominant commercial bank and accounts for 70% of total assets of banks as of May 2013. The balance, 30%, is accounted for by the other 15 banks.

### 4.2.3 SEMI-FORMAL FINANCIAL INSTITUTIONS

Semi-formal providers consist of social groups that provide saving and lending functions, private money lenders, friends and relatives, and are primarily organised as MFIs and SACCOs.

#### MFIS

Since deposit-taking MFIs started in 1996 the industry has shown remarkable growth, with NBE, the microfinance regulator, registering over 30 MFIs to deliver services. This is in line with the government's aim of enhancing the role of the private sector in the provision of financial services. The ownership structure of MFIs is mixed: the sector is dominated by five regional government-affiliated MFIs (the Amhara, Dedebit, Oromiya, Omo, and Addis Credit and Savings Institutions), which have a market share of around 80%. The majority of MFIs are smaller and are affiliated with regional governments or NGOs (both domestic or international by proxy), or are privately owned.

Services provided by MFIs include savings, provision of loans to groups and individuals, micro-leasing activities, micro insurance, and domestic money transfer services. Lending rates of Ethiopian MFIs start at 9% per year. The industry's lowest rates are charged by Addis Credit and Saving Institution, Benishangul, Meklit, and Sidama MFIs. Each MFI requires the client to deposit between 10% and 40% of the loan amount. MFIs pay a 4%

[51] Development Bank of Ethiopia – A Short Guide to Access DBE's Loans

to 6% interest rate on voluntary savings and cover, on average, 36% of their loan portfolio with savings funds.

The capacity of MFIs, measured in terms of their total capital, has been strengthening from year to year. However, while the growth of MFIs has improved financial inclusion, they still only account for a very small percentage of the total national loan portfolio. Consequently, Ethiopia's rural and poorer households, as well as SMEs and micro SMEs, continue to be underserved with financial services. As much as 80% of rural demand for loans is still unmet. Institutional capacity and lack of loan capital are the main constraints on growth in the outreach and sustainability of MFIs.

MFIs in Ethiopia obtain their loan capital from various sources, including savings mobilised by MFIs, grants from donors, selling bonds, and equity and loans from various sources. However, these resources have not been sufficient to meet the existing large demand for loans. Capital injection from different sources is required for Ethiopian MFIs to scale up and meet demand.

#### SACCOS

In addition to MFIs, there are over 14,000 SACCOs in Ethiopia (urban and rural areas). SACCOs are considered to have immense potential in financing short-term loans for agricultural production technologies and undertake off-farm income generating activities in areas where both the state and the private sector have failed. Efforts are being made to strengthen capital resource of SACCO's base through increasing members' subscriptions and mobilisation of savings in rural and urban areas.[52]

### 4.2.4 CARBON MARKETS

Carbon markets in Ethiopia are in the preliminary stages of development, but are believed to offer strong potential for growth. UNDP established a successful voluntary carbon offset mechanism to attract private finance for its Urban NAMA initiative, described above, the success of which shows there is potential for such mechanisms to be replicated. A number of large companies, including Ethiopian Airlines, are considered to be a future potential source of carbon finance as it currently uses mechanisms established in the European Union.

Notably, the NGO SouthSouthNorth is implementing the Climate Finance Innovators project, funded by the German IKI Climate Finance Initiative. The project focuses on the development of carbon markets in Ethiopia, Uganda, and Senegal and seeks to create linkages between GCF projects and UNFCCC market mechanisms.

Additionally, MOFEC is in the process of introducing a **carbon tax system for vehicle emissions**. A draft policy is with the Council of Ministers for review and its proclamation is expected later this year.

[52] Tesfamariam (2015)

# 5. BARRIERS AND ENABLERS FOR CLIMATE FINANCE ACCESS AND MOBILISATION

Photo Credit: plb06

As indicated above, while FDI and ODA have both increased exponentially in the last 10 years, there is still a significant shortfall between the costs of implementing the CRGE Strategy—estimated at an average of US $7.5 billion per year for 20 years—and the current levels of funding available.

Critical barriers to the access and mobilisation of finance persist. As such, this section contains an overview of the main barriers and enablers, while sector-specific ones are considered in Section 6 of this report.

The barriers are sub-divided into:

- Policy and regulatory
- Finance and economics
- Technology and markets
- Information and capacity; and
- Social, cultural, and behavioural.

## 5.1 POLICY AND REGULATORY

### 5.1.1 POLICY

The Government of Ethiopia has shown a strong commitment to climate change by mainstreaming the objectives of the CRGE Strategy. There is consistency between both the GTPs, and CRGE and policy reforms in the electricity sector are aligned with its wider green industrialisation objectives.

The government has also displayed a commitment to making the country more attractive to private investment. In July 2020, the government approved a new investment proclamation and regulations regarding private capital providing greater freedom and incentives for private investment. These include:

- A tax holiday period of four to six years
- 100% exemptions on capital goods
- Duty exemptions on construction materials that are not locally available; and
- Export incentive schemes.

The PPP Proclamation 2018 established a legal framework to remove institutional barriers discouraging international IPPs from participating in Ethiopia's electricity sector. As a result of this, a number of PPPs have been signed following competitive auction processes. Examples include:

- Reykjavik Geothermal signing a power purchase agreement (PPA) to develop the Corbetti and Tulu Moye geothermal plants; and
- The World Bank's Scaling Solar initiative has attracted investment from leading international companies, including ACWA Energy and Enel Green Power.

### 5.1.2 REGULATIONS

NBE is the financial services regulator and keeps a tight rein on the sector. The Ethiopian *birr* (the national currency) is not freely convertible and there are strict regulations governing access to foreign loans. The exchange rate is managed and determined by the NBE, but under the 10-Year Development Plan, this is expected to change to a market-based rate.

The NBE does not authorise the repatriation of interest and principal payments on loan or credit facilities that have not been approved by it. Consequently, all capital brought in and invested in Ethiopia must be registered by the Ethiopian Investment Commission and the NBE.[53]

As noted above, financial services in Ethiopia are currently limited to domestic investors (including the diaspora). International banks are not yet present in the country, although it is expected that the government will extend banking licences to international banks sometime in 2020. Accordingly, Standard Chartered has already expressed an interest.[54]

To date, Ethiopia has only implemented the Basel I international regulatory banking framework. Aligning financial regulations with international standards, in particular the development of frameworks on anti-money laundering, combatting the financing of terrorism, and setting up systems to prohibit modern slavery, among others, would be required as part of Basel II requirements.[55]

Finally, contract enforcement has historically been a concern for international investors. In a positive recent development, Ethiopia ratified the 1958 Convention on the Recognition and Enforcement of Foreign Arbitral Awards (New York Convention), making international arbitral decisions enforceable in Ethiopia. This should provide increased certainty to prospective international investors.

[53] Haile et al (June 2020)
[54] ODI (2014)
[55] Absa Group and OMFIF (2018)

# 5.2 FINANCE AND ECONOMICS

## 5.2.1 FINANCIAL MARKETS

Financial markets in Ethiopia are limited in scope and capacity, especially regarding international markets where substantial finance for climate-related projects could be raised.

At a fundamental level, and as mentioned above, foreign investment in financial services is not yet allowed. Among the consequences of this prohibition is a lack of more sophisticated financing mechanisms such as leasing, equity, and funds and corresponding limited innovative asset classes.

There is no stock market in Ethiopia, and the financial markets—comprising interbank money, foreign exchange, and bond markets – are at a nascent stage, with the capacity to accommodate only a limited number of transactions.

Foreign exchange shortages in the country make it challenging for the government to meet its debt obligations. They also present a challenge for international investors, who often encounter delays when repatriating profits, leading to an increase in risks and therefore cost of capital.

These shortages are a result of public borrowing over the last decades, which has created unsustainable debt service obligations. Ethiopia is now working to improve its debt management. Additionally, NBE has issued a directive indicating that preference should be given to infrastructure projects in access to foreign exchange. However, most investors require a firm commitment or guarantee of such access.

## 5.2.2 FINANCIAL INCLUSION

Ethiopia's financial sector is shallow and coverage of financial services low. According to figures in the most recent World Bank Findex report, only 35% of adults in Ethiopia have an account at a financial institution, 26% save at formal financial institutions (while 62% have reported saving), and only 11% of adults borrow. These figures are all increases from 2014.[56] Despite this increase, Ethiopia still lags behind other countries in the region, with regional averages showing that 43% of adults own accounts.

Unlike regional neighbours such as Kenya, Ethiopia is yet to take advantage of digital financial services. Only 0.3% of Ethiopians over the age of 15 have a mobile money account, compared to 73% in Kenya and an average of 21% across sub-Saharan Africa. While low mobile phone penetration is usually a factor explaining low mobile money account penetration, this is not the case in Ethiopia, where there were 34.7 million mobile subscribers in 2017.[57] This indicates that factors such as regulation, skills, and institutional capacity could be behind Ethiopia's lack of mobile money adoption.[58]

[56] World Bank (18th June 2018)
[57] GSMA (2017)
[58] Demirgüç-Kunt et al (2018)

In August 2020, NBE adopted a directive regulating licencing and authorising of digital payment operations. Accordingly, services related to mobile banking/payments, internet banking/payments, and land agent banking are expected to start operating in the sector. However, the directive requires the licence owner to be Ethiopian.

### 5.2.3 ACCESS TO FINANCE

Access to finance is a challenge for both households and small businesses, thereby limiting the growth of markets for products such as household solar systems and clean cookstoves.

Access to finance in Ethiopia is influenced by a number of factors.

#### LENDING APPETITE

Commercial banks lack the appetite to lend to sectors such as agriculture and forestry due to limited knowledge and high perceived risks. Interest rates and repayment periods on loans are prohibitive towards consumers and small businesses. While DBE lends to MFIs at a rate of 8.5%, interest rates charged by MFIs are between 13% and 17%.

#### COLLATERAL REQUIREMENTS

Banks have set high collateral requirements on loans. Collateral requirements are often 100% of the loan, making them inaccessible to most individuals and small businesses. This is a particular challenge in Ethiopia, where individuals are not able to own land and banks are reluctant to accept leases as collateral. Consequently, unless a borrower has other physical assets or businesses, it is hard or impossible to access commercial debt.

**Risk guarantees** have been successful in lowering collateral requirements—for example reducing collateral requirements for home solar system importers by 50%—but many smaller businesses are yet to benefit. Further reductions of collateral requirements would enable increased borrowing. Given there have so far been no known defaults on credit provided to solar system importers, this should provide confidence to banks to further lower their collateral requirements.

Additionally, a new National Bank directive on collateral may provide more access to finance to rural communities. Under the new regulations, property including livestock can be used as collateral.

#### CAP ON LOANS

A limit of 12.5% on non-performing loans, set by NBE, has forced lenders to tighten up on borrower procedures. Additionally, DBE has placed a limit on how much MFIs can borrow. Liquidity issues affect MFIs' ability to meet demand for finance, which has a knock-on effect on businesses seeking affordable finance to scale. The cap on loans prevents many companies from borrowing the large amounts required for capital investments such as machinery and technology.

## 5.3 TECHNOLOGY AND MARKET

Greater representation of private organisations is required at regional and *woreda* levels. There are businesses associations for some industries, but these are not well organised and have very limited capacity.

In the clean cooking sector, the establishment of the Clean Cooking Alliance of Ethiopia is considered a positive step towards a wider adoption of cleaner cooking solutions and as a platform for businesses in the market to engage in national level policy making.

Limited value chain coordination is also considered to adversely impact attractiveness for private sector investors.

Additionally, as highlighted above, the limited availability and adoption of mobile financial services in Ethiopia mean financial inclusion has remained lower than in neighbouring countries. Pay-Go schemes—which have enabled wide-scale adoption of renewable energy technologies elsewhere in the region—are not yet accessible. This has prevented international investment from off-grid companies that have been successful elsewhere in Africa.[59]

## 5.4 INFORMATION AND CAPACITY

### 5.4.1 INFORMATION

A current challenge is the lack of adequate data to track climate finance. Climate change-relevant expenditure is not yet recognised through the specific coding of expenditure within the national budget, making it difficult to identify such expenditures. Accordingly, the CRGE Facility is now working towards incorporating climate finance tagging in the budgeting system.

Additionally, limited research capacity limits the government's ability to address specific challenges. The Ethiopian Investment Commission conducts research and advocacy on barriers to investment—it is currently, for example, undertaking a federal and regional dialogue to address regulatory barriers and access to finance in the forestry sector. However, such advocacy is expensive and time consuming and the Investment Commission has highlighted limited funding and personnel as a challenge.

Limited support for education, research, and development has been raised as an issue, particularly in the forestry sector.

### 5.4.2 CAPACITY

At the federal level, capacity within government ministries to access and mobilise funding is improving, with technical assistance being provided by a number of development partners. In particular, GGGI has seconded experts to key ministries, including MOFEC, the Ministry of Energy and Mineral Development, and MOWIE.

MOFEC's PPP directorate, with support from the World Bank's REGREP programme, has established a legal and regulatory framework for IPPs. MOFEC has developed a strong understanding of PPP transactions and is now able to prepare IPP procurement documents and oversee competitive auctions processes. The World Bank is also providing training to EEP's IPP unit to prepare PPA documents and negotiate PPAs.

[59] UNDP, UNCDF, and GEF (2020)

An area for improvement cited is greater coordination between ministries and departments and information sharing.

At regional and *woreda* levels, the need for significant improvements in both knowledge and skills within institutions and the related coordination of activities has been cited as crucial.

The capacity of financial institutions was also highlighted as a challenge. Banks and MFIs often have limited understanding of specific business models and are unwilling to lend to sectors that are considered risky (such as agriculture) or new and untested (such as renewable energy).

Efforts are being made to increase banks' understanding of these sectors and their appetite to lend. For example, under the Promoting Sustainable RETs for Household and Productive Uses programme, UNCDF is working with DBE, commercial banks, and MFIs to develop their understanding of rural renewable energy business models. Under this programme, GEF is providing credit risk guarantees to financial institutions (via DBE) to incentivise the banks to lend to new areas and build an understanding of new sectors.

## 5.5 SOCIAL, CULTURAL, AND BEHAVIOURAL

Historically, there has been a distrust of the private sector, a perception rooted in Ethiopia's socialist past. Private companies are viewed as exploitative and rent-seeking. This perception means foreign companies have to work hard to build trust with communities. It is thus important that early projects implemented by private international companies leave a positive impact on local communities. How these early projects are received will be a good barometer of local sentiment for future international private investors.

Partially as a consequence of the above, there has been limited private investment in Ethiopia. Until recently, private investment has generally come through connections to wealthy investors, which has limited the ability of many entrepreneurs and businesses to access it

# 6. SECTORAL ANALYSIS

This report covers two sectors, energy and agriculture, which are a priority for the Ethiopian economy and climate change. Additional information on energy sub-sectors is contained in Annex 1.

## 6.1 ENERGY

Photo Credit: CIFOR

### 6.1.1 OVERVIEW AND SECTOR PRIORITIES

#### 6.1.1.1 Universal electrification

NEP has set the target of universal electrification (i.e. of all households) by 2025. This is to be achieved with 65% grid connections and 35% through off-grid solutions.

Ethiopia is making strong progress towards meeting this universal electricity access goal. Based on World Bank data from 2017, 44.3% of the total population has access to electricity (with 33% connected to the power grid and 11% via off-grid solutions). In urban areas, Ethiopia has achieved almost universal access, with 99.6% of the urban population having access to some form of electricity. Rural access is much lower (30.97%) but is expanding steadily.[60]

#### 6.1.1.2 Diversification of the energy supply

As of 2018, Ethiopia had approximately 4,500 MW of installed generation capacity. Renewable energy accounts for 99% of total installed power generating capacity. Large hydropower accounts for approximately 90% of this, followed by wind and thermal sources.

While it is positive that almost all of Ethiopia's electricity is generated from renewable sources, the present energy mix leaves Ethiopia vulnerable to instances of drought, which are becoming increasingly prevalent and serious due to climate change—in 2011/12 Ethiopia suffered its worst drought in 60 years.

[60] World Bank (n.d.) Sustainable Energy for All (SE4ALL) database, https://data.worldbank.org/indicator/EG.ELC.ACCS.RU.ZS?locations=ET

The country needs to diversify its energy mix to build resilience and become less dependent on hydropower. Large amounts of renewable resources remain untapped, including 45 GW of hydro, 7 GW–10 GW of geothermal, and 1,350 GW of wind.

GTP II set ambitious targets of increasing generation capacity to over 17,000 MW by 2020, which would help sustain Ethiopia's continued economic growth and allow it to become a regional renewable energy hub in East Africa. Large hydropower projects, such as the 6,450 MW Grand Ethiopian Renaissance Dam (GERD), will account for the bulk of projected electricity generation.[61] However, the government is keen to diversify Ethiopia's energy mix to avoid overdependence on hydropower (which is vulnerable to droughts).

As part of the 10-Year Perspective Development Plan, the government has planned to increase the use of solar, geothermal, and natural gas energy resources. Accordingly, five projects are currently approved and a further 19 are in the pipeline.

A breakdown of progress and issues in each sub-sector can be found in Annex 1.

#### 6.1.1.3 Increased FDI, particularly from the private sector

While there have been substantial increases in FDI to Ethiopia's power sector in recent years, further investment is required to meet the financing needs for implementation of the CRGE Strategy.

The Government of Ethiopia recognises the importance of the private sector in raising the capital required. The Home Grown Economic Agenda and New Investment Proclamation are positive signals of intent by the government.

In the energy sector, PPPs are seen as an important tool for mobilising capital. A PPP Proclamation was issued in 2018 and an institutional framework has been developed.

These actions have sent positive signals to private investors. A number of successful tenders have been completed: PPAs have been signed for two large-scale geothermal projects and the World Bank's Scaling Solar initiative has attracted investment from leading international companies ACWA Energy and Enel Green Power.

#### 6.1.1.4 Increasing power exports

Ethiopia envisions becoming a regional power supplier, with plans to export power to neighbouring and regional countries, including Kenya, Djibouti, Tanzania, Sudan, and South Sudan, as part of the East African Power Pool. A PPA has been signed with Kenya for 2 GW of exports, negotiations for a PPA with Tanzania are underway, and Memorandums of Understanding have been signed with Rwanda, Burundi, and South Sudan.

Power Africa is advising on the development of power lines for both local distribution and regional exports. Regional exports are due to increase following the opening of GERD.

[61] USAID (March 2016) Power Africa in Ethiopia - www.usaid.gov/sites/default/files/documents/1860/Ethiopia%20Country%20Fact%20Sheet_0.pdf

### 6.1.2 KEY INSTITUTIONS

- **MOWIE** is the federal department responsible for the energy sector. It is responsible for policy, planning and overall coordination of the sector. Key directorates under the ministry are:
    - The Alternative Energy and Technologies Development and Promotion Directorate
    - The Hydropower Design and Study Directorate; and
    - The Energy Policy, Strategy, and Information Directorate.
- Following the passage of the PPP Proclamation, governance of the electricity sector investment has fallen to **MOFEC**. A centralised PPP directorate has been established within the ministry to oversee and approve PPP transactions for projects across all sectors. The directorate is responsible for signing PPPs through a transparent and competitive auction-based bidding process.
- **EEA** was established in 2014 as the power sector regulator. It is mandated to promote energy efficiency and conservation; ensure efficient, reliable, fair, economical, and safe electricity supply, and to promote competitiveness in the energy sector.
- **EEP** is the state-owned utility responsible for the generation, transmission, purchase, and sale of electricity.
- **EEU** is the state-owned utility engaged in power distribution, customer service, and cost recovery.
- **REES** in MOWIE promotes renewable energy for rural electrification and manages the Rural Energy Fund, which finances projects focused on decentralised electricity generation.

### 6.1.3 POLICIES AND LEGISLATION

A new **Energy Policy** was drafted in 2013 but has yet to be approved by the Council of Ministers. The draft policy places the sector in a contemporary context by linking it with the economic and social sectors as well as the environment and climate change. It prioritises a shift from traditional to modern energy uses, prioritising the development of Ethiopia's renewable resources (particularly hydropower) and taking steps to promote energy efficiency, environmental sustainability, private sector participation, and institutional development.

Under the **10-Year Perspective Development Plan**, the government has targeted the continued development of hydropower resources and increased utilisation of Ethiopia's solar, geothermal, and natural gas resources. So far, five projects have been approved and a further 19 are in the pipeline.

**NEP 2018–23** has set the target of universal electrification (i.e. of all households) by 2025. This is to be achieved with 65% grid connections and 35% through off-grid solutions.

**PPP Proclamation 2018**: PPPs are seen by the government as an important tool for mobilising the finance required for infrastructure from the private sector. In this regard, the PPP Proclamation 2018 was a significant development. An institutional framework for PPPs has also been established, with a Directorate General established in the Ministry of Finance and PPP teams set up in all the relevant ministries.

Dedicated IPP/PPP units have also been established within EEP and EEU, which will be key counterparts for private investors in the power sector.

Additionally, the government is preparing a **Power Sector Reform Roadmap**, which will include further unbundling and liberalisation of wholesale and retail electricity markets.

## 6.1.4 BARRIERS AND ENABLERS

In addition to the cross-cutting issues outlined in Section 4, a number of issues are unique to the energy sector, as presented below.

### 6.1.4.1 Land acquisition

This has been cited as an issue for geothermal and solar projects. The government has pledged to take steps to address this to facilitate land acquisition for future projects.

### 6.1.4.2 Project permits, licences, and approval

Obtaining permits and licences for projects is a complicated process involving multiple agencies. There is often a lack of clarity over the responsibility of each agency in the process. The Council of Ministers is responsible for providing final approval for Power Purchase Agreements and Investment Agreements. Obtaining approval has proven to be a slow process, resulting in delays to several projects, including for Corbetti and Metehara.

As a solution, the government is considering a one-stop-shop that project developers can use to obtain all licences and permits.

New regulations being developed are also due to simplify the application process for mini-grid licences. An integrated generation, distribution, and sales licence will be available for operators of small mini-grids of up to 5 MW.

### 6.1.4.3 Retail tariffs

Retail tariffs for electricity are currently below the cost of power supply. This limits the attractiveness for private investment in the power sector and undermines the financial sustainability of the sector.

To address this issue, the government is working with the World Bank on a plan to gradually increase electricity tariffs. So far, two tariff increases have been made, with an additional increase expected in 2021. Following this, tariffs will be adjusted every four years to enable full cost recovery.

UNDP is assisting the Government of Ethiopia in developing a clear and transparent calculation methodology for mini-grid tariffs. A cost of service approach is set to be adopted, along with an umbrella compensation clause for privately and cooperatively owned mini-grids.[62]

[62] FDRE (2019) Ethiopia's National Adaptation Plan: www4.unfccc.int/sites/NAPC/Documents/Parties/NAP-ETH%20FINAL%20VERSION%20%20Mar%202019.pdf

#### 6.1.4.4 Export risk

Ethiopia's power sector strategy includes substantial exports to countries in the region. As the table below indicates, exports are projected to reach over 4.6 GW by 2025.

*Table 2 Ethiopia – Projected power exports, 2017-2030 (MW)*

| Year | Djibouti | Sudan | Sudan/Egypt | Kenya | Kenya II | Tanzania | Total |
|---|---|---|---|---|---|---|---|
| **2017** | 100 | 100 | – | – | – | – | **200** |
| **2018** | 100 | 100 | – | – | – | – | **200** |
| **2019** | 100 | 100 | – | – | – | – | **200** |
| **2020** | 100 | 100 | – | 400 | – | – | **600** |
| **2021** | 100 | 100 | – | 400 | – | 412 | **1,012** |
| **2022** | 100 | 100 | – | 400 | 200 | 412 | **1,012** |
| **2023** | 100 | 100 | 1,500 | 400 | 200 | 412 | **1,212** |
| **2024** | 100 | 100 | 1,500 | 400 | 400 | 412 | **2,712** |
| **2025** | 100 | 100 | 3,000 | 400 | 600 | 412 | **2,912** |
| **2026** | 100 | 100 | 3,000 | 400 | 600 | 412 | **4,612** |
| **2027** | 100 | 100 | 3,000 | 400 | 800 | 412 | **4,612** |
| **2028** | 100 | 100 | 3,000 | 400 | 1,000 | 412 | **4,812** |
| **2029** | 100 | 100 | 3,000 | 400 | 1,000 | 412 | **5,212** |
| **2030** | 100 | 100 | 3,000 | 400 | 1,000 | 412 | **5,212** |

Source: Power Africa, 2017; World Bank, 2016; MOWIE

While power exports present an opportunity to bring in much-needed foreign currency and contribute to the reduction of GHGs in the region, there are also relevant associated risks. Exports are in fact dependent on continued demand in destination countries: reductions in demand from these countries would leave Ethiopia with overcapacity of generated power, which could undermine the financial viability of its energy sector.

#### 6.1.4.5 Standardisation of products

A further issue cited is the standardisation of products and services, particularly for clean cookstoves and household solar systems. Ensuring that products on the market are of a high standard is in fact essential for building consumer confidence.

EnDev and UNDP are supporting the development of product standards for clean cookstoves and household solar products.

- Standards for household solar products are being aligned with international standards for Lighting Global certified products. For imported products, pre-export verification of conformity will be required, which means products will require certification to meet Ethiopian standards before leaving the country of supply.
- EnDev has been supporting the development of product standards for clean cookstoves, in line with international standards. While the development of standards is a positive step, it remains to be seen how these will be enforced in practice.

# 6.2 AGRICULTURE

Photo Credit: US Army Africa

## 6.2.1 OVERVIEW AND SECTOR PRIORITIES

### 6.2.1.1 Food security

Agriculture is a mainstay of Ethiopia's economy, with over 80% of Ethiopia's population engaged in agriculture activities. The majority of these are smallholders involved in subsistence and rain-fed farming or livestock production.

Agricultural products also constitute a large proportion of Ethiopia's exports: coffee is the largest foreign exchange earner, with other agricultural exports including oil seeds, dried pulses, hide and skin, and live animals. Horticulture is also growing as a source of foreign revenue.[63]

Despite the recent growth in agricultural exports, many Ethiopians (approximately 35% of the population) remain food insecure. Frequent droughts, lack of training and equipment for farmers, and poor access to markets adversely impact agricultural productivity, making it hard for farmers to make a living.[64]

In terms of climate change, the agricultural sector is a major contributor to Ethiopia's national emissions, accounting for approximately 60% of total emissions. Ethiopia has the largest livestock population in Africa and livestock-related activities account for almost 92% of agricultural emissions. Crop-related emissions are associated with the burning of natural vegetation, the cultivation of organic soils, and the use of synthetic fertiliser. Additionally, most emissions from the forest sector are associated with deforestation for the expansion of agricultural land.[65]

### 6.2.1.2 Climate resilience

Meanwhile, climate change has the potential to impact Ethiopia's agricultural production through the following effects in particular:

[63] Food and Agricultural Organization (FAO)
[64] Farm Africa
[65] USAID (January 2017) Climate-Smart Agriculture in Ethiopia—Feed the Future: The US Government's Global Hunger and Food Security Initiative

- Changes in water availability for crop and livestock production
- Increased competition for pasture and water for livestock; and
- Geographical shifts and reduction of suitable areas for the production of staple crops.

The CRGE Strategy lists seven priority areas for the agriculture sector, three of which are crop- and soil-based and four of which are livestock-based:

- Intensify agriculture through usage of improved inputs and better residue management, resulting in the decreased requirement for additional agricultural land that would primarily be taken from forests
- Create new agricultural land in degraded areas through small-, medium-, and large-scale irrigation to reduce the pressure on forests if expansion of the cultivated area becomes necessary
- Introduce lower-emission agricultural techniques, ranging from the use of carbon- and nitrogen-efficient crop cultivars to the promotion of organic fertilisers. These measures would reduce emissions from already cultivated areas
- Increase animal value chain efficiency to improve productivity, i.e. output per head of cattle via higher production per animal and an increased off-take rate, led by better health and marketing
- Support consumption of lower-emitting sources of protein, e.g. poultry. An increase of the share of meat consumption from poultry to up to 30% appears realistic and will help reduce emissions from domestic animals
- Mechanise draft power, i.e. introduce mechanical equipment for ploughing/tillage that could substitute around 50% of animal draft power, which—despite burning fossil fuels—results in a net reduction of GHG emissions; and
- Manage rangeland to increase its carbon content and to improve the productivity of the land.[66]

### 6.2.2 KEY INSTITUTIONS

- Ministry of Agriculture: responsible for the development and implementation of agricultural and rural development policies.

- **ATA**: a semi-autonomous, donor-sponsored state agency that seeks to identify and remove bottlenecks in agriculture. ATA focuses on the following areas:

    - Agricultural production and productivity of smallholder farmers
    - Processing and value addition in agri-businesses for improved market access
    - Sustainable and inclusive growth for improved farmers' resilience; and
    - Capacity building of agricultural institutions for project implementation and impact maximisation.[67]

    Notable initiatives by ATA include a nationwide, digital soil mapping scheme launched in 2012 that has transformed the use of fertiliser in Ethiopia and a hotline

[66] FDRE (December 2011)
[67] USAID (January 2017)

(launched in partnership with the Ethiopian Institute of Agricultural Research and Ethiopian Telecom) dispensing free advice to farmers.[68]

- **NARS:** NARS comprises of the Ethiopian Institute of Agricultural Research and its regional research institutes, federal and regional research centres, and universities. NARS aims to generate and promote the adoption of knowledge, improved practices, and technologies that increase agricultural productivity. NARS collaborates with a variety of external stakeholders in this work.

### 6.2.3 POLICIES AND LEGISLATION

**Agricultural Sector Policy and Investment Framework 2010–20**
The main objective of policy is to sustainably increase rural incomes and national food security producing more, selling more, nurturing the environment, eliminating hunger, and protecting the vulnerable against shocks.
The four main policy themes are to:

i. Achieve a sustainable increase in agricultural productivity and production
ii. Accelerate agricultural commercialisation and agro-industrial development
iii. Reduce the degradation and improve the productivity of natural resources; and
iv. Achieve universal food security and protect vulnerable households from natural disasters.

These themes align with the GTP in its aim of attaining middle income status by 2025, with agriculture a key sector driving economic growth.

**GTP II**
Priorities outlined for the agriculture sector are:

- Further development of smallholder crop and pastoral agriculture
- Provide all-round support to educated youth to enable them organise and engage in agriculture investment
- Enhance provision of the necessary support for domestic and selected foreign investors to enable them to participate in transformative agriculture sub-sectors such as crops, flowers, vegetables and fruit, and livestock development
- Continue to pursue implementation of the scaling-up strategy in agro-ecological development zones; and
- Pursue holistic measures aimed at addressing constraints and challenges related to the supply of agricultural inputs and the utilisation of agricultural technologies.[69]

### 6.2.4 BARRIERS AND ENABLERS

Increasing commercialisation of the agriculture sector will require considerable involvement of the private sector, in addition to DFIs and other concessional finance providers. Longer-term investment capital is required for agricultural SMEs and smallholder farmers to grow their businesses, but access to sufficient and adequate

[68] Africa Renewal (December 2015) Ethiopia—Fixing Agriculture: www.un.org/africarenewal/magazine/december-2015/ethiopia-fixing-agriculture
[69] National Planning Commission (May 2016)

finance continues to be a significant challenge. From the perspective of the financial sector, the agriculture sector is a less attractive area of investment than other sectors.

The agriculture sector exhibits a number of characteristics that cause high transaction costs for financial providers, which in turn impede the provision of financial services to the sector.

#### 6.2.4.1 High risk–low return profile

Most small-scale farming ventures are unprofitable due to lack of economies of scale in land use and outdated practices. Farmers are also seen to face unfavourable, weather-dependent risks.

#### 6.2.4.2 Small transaction sizes

Small projects increase transaction costs, including the share of costs of loan origination, monitoring, and the collection of financial institutions relative to other sectors with higher average transaction sizes.

#### 6.2.4.3 'Lumpy' cash flows

In agriculture, typical cash flows consist of one large outflow (loan) followed by a large inflow several months later following the harvest. Because the ease of monitoring the creditworthiness of individual customers increases for financial institutions with the frequency of repayments (since each individual repayment provides a monitoring opportunity), agricultural customers are more difficult to monitor compared with businesses with multiple cash inflows and outflows. Apart from monitoring problems, 'lumpy' cash flow patterns also complicate financial intermediation for financial institutions where agriculture is the primary economic activity. In this case, the savings and investment patterns of customers match and savers are likely to withdraw their savings at the time of greatest demand from borrowers, often when inputs (such as fertilisers) need to be purchased.

#### 6.2.4.4 High covariance across borrowers

All borrowers are similarly affected by the same macro risks, especially climatic shocks, which increases the individual and portfolio risk of lenders. This issue is particularly acute in Ethiopia, where approximately 95% of agricultural production is rain-fed.

#### 6.2.4.5 Diverse sub-businesses with distinct dynamics

Agriculture consists of many different sub-industries with significantly varying investment and risk patterns. This causes high specialisation costs in monitoring within a cash-flow-based lending model, providing incentives to financial institutions to lend based on collateral or limit activities to easy-to-understand, homogenous parts of the business such as input credits.

#### 6.2.4.6 Lack of appropriate collateral

To manage risk, financiers often request collateral from smallholder farmers and SMEs, who often have little or no collateral. As farmers generally cannot own land titles in Ethiopia, land is not an acceptable collateral. This also complicates the use of buildings as collateral. A lack of risk management skills among most financial institutions, and a strong focus on highly collateralised lending, further exacerbate the collateral issue in Ethiopia.

#### 6.2.4.7 Dispersed population

Over 80% of Ethiopia's population live in rural areas, with these being sparsely distributed, making value chain development and outreach hard. This problem is exacerbated by the low quality and density of the road networks in Ethiopia. Digital financial services have provided a solution to this problem in other countries but, as highlighted above, uptake in Ethiopia remains low.

#### 6.2.4.8 Limited insurance schemes access and use

Smallholder farmers still access most of their money from credit unions and cooperative unions, which provide small-sized loans and limited group insurance schemes. Agricultural insurance remains limited and the few local schemes that have been developed remain at pilot level or at a relatively small scale. Expanding insurance services to smallholder crop and livestock farmers could be an opportunity to encourage private sector involvement while building resilience of farmers.

In 2014, the Ministry of Agriculture and ATA established an **Input Voucher Scheme** to encourage increased adoption of improved agricultural inputs. Distribution of these inputs is largely financed by regional governments and distributed through cooperatives. For example, the Oromia Cooperative Bank of Ethiopia was established by the Oromia regional government to support local agri-businesses to finance their activities.

# 7.CONCLUSIONS AND RECOMMENDATIONS

Photo Credit: Trevor Cole

In this section, we identify the main conclusions and recommendations and suggest immediate next steps for support, as derived from the report.

## 7.1 SUPPLY CHAIN SUPPORT

### CONCLUSION

There is no structured and systematic approach to identify project pipelines and support project developers and entrepreneurs across the climate finance supply chain.

### RECOMMENDATIONS

Support the establishment of a dedicated unit assisting project developers and entrepreneurs to originate projects or business ideas and take them successfully through the climate finance supply chain (given the working title hereafter of the 'Climate Finance Supply Chain Unit' or 'Supply Chain Unit').

The Supply Chain Unit would also work with financiers to increase their technical capacity to understand climate-related projects, the risks associated with them, and the financing techniques available to mitigate them.

As well as providing technical assistance, the Supply Chain Unit would provide feedback to relevant stakeholders, such as the Government of Ethiopia and DFIs, on suggested changes in regulation, the enabling environment, and de-risking interventions. It would also suggest ways to address barriers found in other key areas, such as information and capacity or technology and culture.

### SUGGESTED IMMEDIATE NEXT STEPS

Develop a concept note to outline the parameters for a pilot of the Climate Finance Supply Chain Unit. The aim of the pilot would be to explore possible options for supply chain support, including governance structure, long-term funding sources, and relevant stakeholders.

The pilot should also explore the options for a specialist fund related to the Supply Chain Unit's ongoing operation, potentially providing investment finance alongside public or

private investors. The size, sector focus, governance, and management of the potential fund should be investigated.

### FUNDING

A pilot project could be funded by philanthropic, multilateral, or bilateral donors, or a combination of these.

## 7.2 FINANCE GAPS

### CONCLUSION

An indicative mapping of the status of climate finance in Ethiopia, presented in the table below, highlights gaps in the availability of necessary finance types across the entire supply chain.

Green dots indicate that a particular type of finance is relevant to the respective stage and is available to at least some degree, while red dots indicate gaps in what is required, or there may be limited cases to use such finance at the moment (such as refinance or primary finance from international investors). Amber indicates there is still significant room to increase levels of finance/support from current levels. Where a cell is empty, the type of finance is not considered relevant to the stage in the supply chain.

*Table 3 Mapping of finance sources and project supply chain*

| CATEGORIES | | PROJECT SUPPLY CHAIN | | | | |
|---|---|---|---|---|---|---|
| | | | Identification | Development | Primary finance | Refinance |
| Sources | Climate funds | International | 🟢 | 🟢 | 🟢 | |
| | Multilateral institutions | | 🟡 | 🟡 | 🟢 | |
| | Bilateral development partners | | 🟡 | 🟡 | 🟢 | |
| | FDI | | | | 🟢 | |
| | Commercial banks | | | 🔴 | 🔴 | 🔴 |
| | Institutional investors | | | | 🔴 | 🔴 |
| | Private equity and venture capital | | 🟡 | 🟡 | 🟡 | |
| | Impact funds | | | 🟡 | 🟡 | |
| | NGOs and philanthropic organisations | | | 🔴 | 🟢 | |
| | Government budget | Domestic | 🔴 | 🔴 | 🟢 | |
| | Formal financial institutions | | 🔴 | 🔴 | 🟢 | 🟡 |
| | Semi-formal financial institutions | | | | 🟢 | |

| CATEGORIES | | PROJECT SUPPLY CHAIN | | | |
|---|---|---|---|---|---|
| | | Identification | Development | Primary finance | Refinance |
| Instruments | Company balance sheets | | 🟡 | 🟢 | |
| | Bank loans/project finance | | 🔴 | 🟡 | 🔴 |
| | Structured finance | | | 🔴 | 🔴 |
| | Bonds/green bonds | | | 🔴 | 🔴 |
| | Institutional investments | | | 🟡 | 🟡 |
| | Specialist sector finance | | 🔴 | 🔴 | 🔴 |
| | De-risking products | | 🟡 | 🟡 | |
| | Microfinance | | | 🟢 | |
| | Concessional finance | | 🔴 | 🟢 | |
| | Grants | 🟡 | 🟡 | 🟢 (co-finance) | |

Source: CFP team analysis

- 🟢 = Relevant, available
- 🟡 = Relevant, partially available
- 🔴 = Relevant, significant gap

From the point of view of barriers, these gaps will need to be addressed if the supply chain is to work efficiently.

From the point of view of opportunities, and given the very significant finance requirements to implement Ethiopia's CRGE, there is huge potential for financing and investment across all sectors and stages of the supply chain.

Blended finance solutions, especially de-risking mechanisms, will be necessary to enable and accelerate the transition from the current public sector-led stage to a time when public/private or even fully commercial solutions are available.

### RECOMMENDATIONS

The mapping done in this report has necessarily been preliminary and high-level given its scope. A better understanding of the landscape will be required to understand the priorities for stakeholders, especially in the unique cultural context of Ethiopia's finance market.

We therefore recommend that a fuller mapping exercise be undertaken, ideally in tandem with the Climate Finance Supply Chain Unit pilot mentioned above, since the mapping will be relevant to its design and operation. It would also be highly relevant to the recommendation on financial markets below.

### SUGGESTED IMMEDIATE NEXT STEPS

Development of a proposal for the revision and completion of the initial finance mapping in a multi-stakeholder setting, and identification of options to ensure the mapping is updated regularly, potentially through embedding it in an existing structure.

### FUNDING

The suggested full mapping could be funded by philanthropic or multi-/bilateral donors, and/or may be a suitable subject for an application to funding sources (such as GCF's country readiness programmes).

## 7.3 DEVELOPMENT OF INTERNATIONAL AND DOMESTIC FINANCIAL MARKETS

### CONCLUSION

Ethiopia's financial markets are not mature, particularly regarding climate change finance, but are expected to open up soon to international investments.

### RECOMMENDATIONS

With respect to climate-relevant projects, we recommend a capacity building project or programme to support Ethiopian stakeholders (including the government and existing and new-entrant banks and other finance providers) to address the financial challenges identified in the enabling environment analysis in this report, both at the cross-cutting and sectoral levels.

Once international commercial banks are allowed to operate in the country, there could be space for them to support the development of the domestic financial market through corporate knowledge sharing of best practices (for example, the development of standards and policies aligned with international requirements), on-the-job training (for instance to develop or strengthen domestic bank project appraisal, project finance, and refinancing capabilities), development of funding instruments and asset classes (such as green bonds and structured finance, in addition to challenge funds that are being piloted in the forestry sector), and provision of sustainable finance credit lines. Supporting the accreditation of the GCF for domestic banks, as well as upgrading existing accreditation for larger projects, have been specifically mentioned as priorities.

### SUGGESTED IMMEDIATE NEXT STEPS

Revision and validation of the barriers and enablers analysis, in addition to development of a detailed capacity building needs assessment.

### FUNDING

The suggested full mapping could be co-funded by philanthropic or multi-/bilateral donors and international commercial banks, in addition to funding sources such as GCF's country readiness programmes.

## 7.4 INSTITUTIONAL CAPACITY BUILDING

### CONCLUSION

The interviews identified low capacity in a range of governmental and non-governmental actors, including e.g. business associations. Challenges are particularly felt at the sub-national levels.

### RECOMMENDATIONS

A dedicated technical assistance programme, possibly focusing on agriculture and energy as initial sectors, could address improvements in capacity required in, among others:

- Developing an adequate system that can monitor and report on finance to projects to understand its effectiveness
- Specific tracking and recording of investments from the private sector
- Establishing platforms that can connect different players in the market and improve coordination
- Alignment of resource mobilisation with investment priorities of the ministries (particularly needed in the agriculture sector)
- Concept notes and proposal development, given the different formats and requirements
- Environmental and social safeguards mainstreaming in policies and processes, as well as appraisal and screening for risks; and
- Building and administration of a geothermal database, given that data management is a challenge.

### SUGGESTED IMMEDIATE NEXT STEPS

It is recommended to carry out a detailed needs assessment related to climate finance before developing a tailored programme to address the gaps.

### FUNDING

Bilateral or multilateral sources, or climate funds (GCF) readiness.

## 7.5 PIPELINE DEVELOPMENT

### CONCLUSION

From our understanding of government priorities and funding gaps as identified via the interview process, there are specific opportunities in the energy and agriculture sectors that would require further analysis but could be of interest to a range of finance providers.

### RECOMMENDATIONS

Three areas of particular interest are under the responsibility of the Ministry of Energy but cut across other sectors. Mainly via the use of renewables, these have the potential to sustainably increase agricultural productivity.

1. Medium and large-scale irrigation: this is the focus of both the Ministries of Agriculture and Energy. As learnt from the key informants, there are reliability issues with the current hydropower supply. Due to the negative impacts on foreign currency earnings of COVID -19, medium- and large-scale irrigation has been the focus of Ethiopia's government as a tool to substitute imports of agricultural products such as wheat and maize.

2. WASH: about 59% of rural areas do not have access to clean water and electricity. Many of the rural inhabitants use firewood as a source of energy. Therefore, any programme in this area will be able to link the energy and agriculture sectors, thereby promoting productive energy use.

3. Rural electrification: the government's 10-Year Perspective Development Plan aims to increase the coverage of electricity services by 65% from the grid and 35% from off-grid services, of which 27% is expected to come from non-hydro. Solar and wind are expected to provide positive investment areas, also through the increasing integration with small and large appliances (such as electric cookstoves, refrigeration, TV, mobile charging, and lights), targeting mainly rural and small-town areas.

These opportunities could become themes/strategies for specialist funds, either in Ethiopia or regionally, and may therefore be the subject of initial focus by potentially interested finance providers, subject to prevailing circumstances in the Ethiopian context.

### SUGGESTED IMMEDIATE NEXT STEPS

It is recommended to identify a long list of topics and project ideas that can then be prioritised further into short lists through screening against agreed criteria and interest from financiers.

### FUNDING

The projects can be funded by a multitude of blended finance sources and instruments, depending on the risk/reward appetite.

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# ANNEX 1: ADDITIONAL DETAILS ON RENEWABLE ENERGY SUB-SECTORS

| Sub-sector | Overview / Current Policies and Programmes | Barriers and Enablers |
|---|---|---|
| **Hydro** | Ethiopia has the second largest hydropower potential in Africa, with almost 48 GW capacity. The country's economic progress is highly dependent on the development of its hydro resources.<br><br>As of 2019, approximately 10% of total hydropower potential has been exploited, nonetheless this covers 90% of the populations electricity demand.<br><br>As of 2019installed capacity of hydro iwas 4.3 GW. The largest active plant is Gilgel-Gibe III, which opened in 2016 and has a capacity of 1.87 GW<br><br>The Grand Ethiopian Renaissance Dam (GERD) – the most significant project – is still under construction but, when operational, will have a total capacity of 6.54 GW. The project will be completed in three phases, with GERD 1 due to open in 2020, GERD 2 in 2023, and GERD 3 in 2024<br><br>Ethiopia is planning to launch 12 hydroelectric projects under its 10-Year Perspective Development Plan, 2020–30 | To date all of Ethiopia's hydro projects have been financed with public sector borrowing. Ethiopia has acknowledged that private finance will be required for future projects and has been taking steps to attract private investment<br><br>There has also been discussion about privatising existing hydro plants, but no action has been taken on this so far<br><br>Ethiopia plans to export a significant amount of generated hydropower. Whilst this presents a significant economic opportunity for Ethiopia. it is also subject to risk. Reduced demand for power exports leaves Ethiopia with a generation surplus, which can undermine the financial sustainability of the sector. |
| **Solar** | Ethiopia has significant solar potential, with irradiation levels of 1500 to 200 kilowatt hours per square metre.<br>Solar power can help diversify Ethiopia's energy mix and allow it to manage its water resources more effectively. This is vital given severe droughts which have afflicted the country in recent years.<br><br>The government has taken steps to increase Ethiopia's solar generation capacity. Following the PPP Proclamation in 2018, the government used two solar initiatives—Metehara and Scaling Solar—to test its procurement and financing models:<br><br>• Metehara: USAID/Power Africa provided support for this project which, following a competitive bidding process, was awarded to a consortium of Enel Green Power and Orchid Business Group (a local company). A two-year PPA was signed between the project development consortium and EEP. A fixed tariff of US $0.05898/kWh was agreed in the proposal submitted by the project developers. The government is currently trying to renegotiate this tariff, following reduced tariff rates (US $0.025/kWh) resulting from the Scaling Solar bidding process | |

| Sub-sector | Overview / Current Policies and Programmes | Barriers and Enablers |
|---|---|---|
| | Metehara was the first privately financed solar power project in Ethiopia. The project had to address key issues such as managing risks associated with the creditworthiness of the off-taker, foreign exchange shortages in the country, and the government's lack of familiarity with private transactions<br><br>• Scaling Solar: a World Bank initiative using a PPP model designed to mitigate and optimise risks by allocating them between the investor, the off-taker, and the government<br><br>Under Scaling Solar,, the World Bank has a mandate to develop 750 MW of solar capacity in Ethiopia.<br>This will be accomplished through a portfolio of six projects. Currently two sites have been chosen (Gad and Dicheto in the eastern states of Somali and Afar). In September 2019, ACWA Power (a Saudi developer) was selected following a competitive bidding process<br><br>For both Metehara and Scaling Solar, the World Bank provided a partial risk guarantee to mitigate risks. This funding was drawn from the Ethiopia REGREP, which both provides payment guarantees (covering up to six months of payments by EEP to the investor) and loan guarantees (to commercial banks which finance the project) | |
| **Geothermal** | The government is taking steps to make geothermal an attractive opportunity for private investment. In 2016 a Geothermal Proclamation was issued and regulations for the sector are being developed.<br><br>The Ethiopian Electric Authority acts as regulator for the sector<br><br>There are currently two significant IPP projects—Corbetti and Tulu Moye (both 150 MW)—which are at advanced stages of development<br>Following a competitive bidding process, the contracted company has signed a PPA with the government. Drilling permits have been issued and work is due to begin soon<br><br>Additionally, there are two smaller, government-owned geothermal projects Aluto and Langano (which both have a capacity of 5 MW). These projects were largely publicly financed alongside a grant from the Japan International Cooperation Agency (JICA) | • Ethiopia has significant potential for geothermal; there is estimated to be between 7 and 10 GW of untapped geothermal energy<br><br>• Human resource capacity was cited as a challenge within the EEA and the sector as a whole. This was a particular issue during the development of regulations and on the review of Environmental Impact Assessments. The EEA are currently working to build their capacity and understanding of the sector. Members of the team have travelled to Kenya and Iceland for training<br><br>• Data management is also a challenge. The EEA are seeking funding to develop and administer a geothermal database |
| **Wind** | Ethiopia has an estimated potential of 1.35 GW wind energy, of which the government currently has plans to develop 800 MW. Wind is a good complement to hydro power as the dry season (where droughts are most common) is also the windiest | • The Government has requested the International Finance Corporation (IFC) carry out a detailed study for scaling wind IPP development |

| Sub-sector | Overview / Current Policies and Programmes | Barriers and Enablers |
|---|---|---|
| | There are currently three wind projects in operation and one under development:<br><br>• The Ashegoda wind farm project was co-financed by AFD (who provided soft debt) and a consortium of French banks. Construction of Ashegoda was undertaken by French companies Vergnet and Alstom Wind[70]<br>• The remaining three wind farms have been funded with loans from China Ex-Im Bank<br><br>The Government of Ethiopia has planned the development of seven wind projects as part of the 10-Year Perspective Development Plan 2020–30 | • Denmark is helping train Ethiopia Electric Power's IPP unit to build capacity for future wind IPPs |
| **Biofuel** | The CRGE Strategy emphasises the use of domestically produced biofuels as an alternative to fossil fuels.<br><br>Ethiopia's Biofuel Strategy sets out plans to increase domestic production of biofuel to be used as a substitute for imported petroleum<br><br>The Ministry of Mines and Petroleum is responsible for the development and implementation of Ethiopia's biofuel strategy. They are currently developing a legal framework which will make the market more conducive to private investment. This framework will include definitions on the standard of land which can be used for biofuel development<br><br>Current biofuel production in Ethiopia is predominately from the sugar industry. There are currently two sugar factories, which produce ethanol (with a total production of 11 million litres of fuel per year). Sugarcane is supplied by local farmers<br><br>These factories are currently government-owned but the government is looking to privatise them. | • There is a strong need for international investment given the high costs and expertise required for biofuel development<br><br>• The value chain for biofuel is diverse and presents many opportunities for private investment<br><br>• There is also scope for biofuel development to be aligned with other priority areas, such as for use in clean cooking |
| **Mini-grids** | NEP has set the target of universal electrification (i.e. of all households) by 2025. This is to be achieved with 65% grid connections and 35% through off-grid solutions (including mini-grids and solar home systems).<br><br>In 2019, EEU launched a tendering process for 25 mini-grid projects, with financial backing provided by AfDB<br><br>EnDev is supporting MOWIE with the implementation of the mini-grid program under NEP. Financial assistance is provided | A challenge for prospective investors has been the setting of tariffs. Electricity prices in Ethiopia do not accurately reflect the real cost of electricity procurement. To overcome this challenge, the Government of Ethiopia, with assistance from UNDP, is in the process of revising the regulation of mini-grid systems, with the goal of making their development in Ethiopia financially viable<br><br>UNDP has been supporting the government on the development of regulations for the energy sector. Prospective new regulations will address issues of both tariff calculations and standardisation of products and services. In terms of tariff calculation, as suggested in NEP 2.0, the Energy Regulations under consideration use a cost of service approach to mini-grid tariff calculations and |

[70] *Agence Française de Développement* (AFD) (n.d.) Ethiopia's first wind farm in Mekele, www.afd.fr/en/carte-des-projets/ethiopias-first-wind-farm-mekele

| Sub-sector | Overview / Current Policies and Programmes | Barriers and Enablers |
|---|---|---|
| | by the European Union, through guarantees to de-risk projects<br><br>Additionally, EnDev has provided technical support in developing and overseeing the tendering process for five micro-hydro sites. The tendering process saw competitive tariff prices and the first licence for mini-grids issued to a private investor. EnDev is now overseeing a tendering process for solar mini-grid projects<br><br>Lotus Energy (a community-owned Australian firm) recently signed a contract with Ethiopia's EFFORT Group (an industrial conglomerate) to develop a 500 MW project in the Tigray region. The project will combine solar power, battery storage and waste-to-energy capacity. Lotus is privately backed by Danish firm Obton.[71] | include an umbrella compensation clause for privately/cooperative owned mini-grids that will be detailed through directives[72]<br><br>The Energy Regulations are also due to address the following areas, which will provide further clarity and certainty to potential private sector investors in mini-grids:<br><br>• Simplified licencing application processes for small mini-grids (up to 5 MW of distributed power) with an integrated generation, distribution, and sales licence<br>• A clear and transparent tariff calculation methodology for mini-grid tariff setting, and potential fixed aspects to be contained in the licences issued (i.e. a fixed payment and a kWh-based payment)<br>• Establishment of technical standards for grid integration, applicable to EEU as well<br>• Safety, reliability, and environmental protection |
| **Solar home systems** | NEP has set the target of universal electrification (i.e. of all households) by 2025. This is to be achieved with 65% grid connections and 35% through off-grid solutions (including mini-grids and solar home systems).<br><br>The market for household solar products in Ethiopia has started to gain traction in the last 10 years. The following initiatives have contributed to the growth of this sector:<br><br>• The Rural Electrification Executive Secretariat in MOWIE promotes renewable energy for rural electrification and manages the Rural Energy Fund, which finances projects focused on decentralised electricity generation<br><br>• Following the launch of it's *Lighting Africa* initiative in 2013, the World Bank has played a key role in the growth of the off-grid solar market:<br><br>  • Through its Electricity Reinforcement and Expansion Project (ENREP) the World Bank has provided funding to DBE for on-lending to producers, distributors, and consumers of household solar systems<br><br>  So far the World Bank has provided over US $200 million through the ENREP initiative. Funding from the programme is provided to companies whose products meet Lighting Global | Despite recent progress, a number of challenges may limit market development going forward:<br><br>• Liquidity issues limit the ability of banks and MFIs to meet the demand for credit. DBE has a limit on how much MFIs can borrow and the rate of disbursement is slow<br>• Collateral requirements limit the amount that companies can borrow from banks. This is a particular challenge for small and micro businesses in the sector, many of which are yet to benefit from the credit facilities provided by the World Bank<br>  While risk guarantee funds have helped lower collateral requirements for solar system importers by 50%, further reductions of collateral requirements would enable increased borrowing. Given that there have so far been no defaults for credit provided to solar system importers, this should provide confidence to banks to further lower their collateral requirements<br>• Consumer finance in the sector is still limited. Interest rates and repayment periods on loans from MFIs are often prohibitive to consumers. Interest rates on loans provided by MFIs are about 17% (MFIs borrow from at 8% interest from DBE). This has a direct impact on adoption of products, as consumers cannot access loans from MFIs. The lack of affordable financing leads consumers to choose compensate with lower-quality products, which leads to weak consumer confidence in products<br>• Due to limited adoption of mobile financial services in Ethiopia, Pay-Go schemes—which have enabled wide-scale adoption of home solar systems elsewhere in the region—are not yet accessible. This has prevented international investment from off-grid companies which have been successful elsewhere in Africa[74]<br>• Finally, ensuring consumer confidence in the quality of products on the market remains a challenge. Standards for products and services provided by solar |

[71] African Review (14th 2020)
[72] FDRE (2019) National Electrification Program 2.0, p. 74
[74] UNDP, UNCDF, and GEF (2020)

| Sub-sector | Overview / Current Policies and Programmes | Barriers and Enablers |
|---|---|---|
| | Standards. This has enabled the distribution of 2.2 million quality-verified systems in Ethiopia between 2013 and 2018<br><br>The World Bank is currently preparing a third phase of this facility, which will have a higher allocation of funding. AfDB are also in the process of undertaking a market assessment with a view to designing a similar facility<br><br>• Additionally, the Carbon Development Initiative for Development—a US $125 million fund with a pipeline of projects in Africa—signed an emissions reduction purchase agreement with DBE to provide additional funding to ENREP through the purchase of GHG emissions reductions. This funding is being used to address concerns over insufficient warranties and battery replacement for solar home systems, with a view to improving consumer confidence in the quality of products in the sector[73] | home systems are currently being developed (with support from UNDP). Standards will be aligned with those established for Lighting Global certified products. Pre-export verification of conformity will be required for imported products, which means products will require certification to meet Ethiopian standards before leaving the country of supply |
| **Energy for productive uses** | Promoting the use of renewable energy technologies which can enable increased productivity in agriculture and other industries is key area for development. Increasing the total irrigated land has been a priority for the government. From 2018–22 the Government of Ethiopia has planned to expand its irrigation from 500,000 hectares of land to 627,163 hectares. Under the 10-Year Perspective Development Plan the budget assigned for irrigation projects is estimated to be 358,114 million Ethiopian *birr*.<br><br>Additionally, in December 2016, the Ministry of Water, Irrigation and Electricity, with support from the UNDP, GEF and IFC, launched Promoting Sustainable RETs for Household and Productive Uses: initiative. The aim of the project is to implement a private sector-driven and market-based approach towards the promotion of renewable energy technologies for rural communities in Ethiopia. The project includes the development of a partial credit risk guarantee fund as a financing mechanism. The credit risk guarantee fund is managed | Electrification has significant potential to help farmers increase agricultural productivity, unlock processing activities, and create new businesses. Use of electrical appliances in activities such as irrigation, milling, baking, and cold storage has the potential to produce a further US $4 billion in annual revenue by 2025[75]<br><br>Increasing adoption of energy for productive use also creates a virtuous circle through greater demand for electricity, which in turn creates better financial returns for the energy utility. This is beneficial for grid electrification and crucial for enabling the use of mini-grids in off-grid electrification. Increased demand improves the sustainability of the sector by reducing the need for subsidies and creating revenue for maintenance and further improvement and innovation |

[73] World Bank (2016) Off-Grid Solar Lighting Up Ethiopia, 15 August, www.worldbank.org/en/news/feature/2016/08/15/off-grid-solar-lighting-up-ethiopia
[75] Rocky Mountain Institute (April 2020)

| Sub-sector | Overview / Current Policies and Programmes | Barriers and Enablers |
|---|---|---|
| | by DBE, with funding provided by GEF. Partial risk guarantees (of up to 50% of loan value) are provided to commercial banks and MFIs for the purpose of lending to renewable energy technology enterprises with a regional or national outreach | |
| **Improved Cooking Solutions (ICS)** | Increasing uptake of improved cooking solutions is a key intervention within the government's development agenda and is listed as a priority in the following strategies:<br>• In Ethiopia's NDC, the forestry sector is highlighted as the main contributor to emissions reductions, accounting for 50% (130 Mt $CO_2e$) by 2030. Clean cook stove distribution contributes 30% of targeted emissions reductions from the forest sector (21% from bioenergy and 9% from electricity)<br>• The CRGE Strategy prioritises clean cooking as one of four fast-track interventions for GHG mitigation<br>• The GTP frameworks include five-year plans for clean cook stoves. GTP II sets ambitious goals for the clean cooking sector, targeting the distribution of 11.5 million stoves by 2020. According to recent progress reports from the EFCCC and MOWIE, achievement is about 80% of annual targets<br><br>The Ministry of Water and Energy of Ethiopia has designed the National Improved Cookstoves Program to contribute to the implementation of the Government of Ethiopia's improved cook stoves distribution plan through building a sustainable and vibrant market for improved cook stoves and building institutional capacity at all levels. The programmatic approach addresses both the supply and demand sides of the market, involving (among other actions) capacity building support for all parties involved in the market. These include government staff, private sector operators (producers and distributors), and savings and credit service providers (on the supply side) and customer support, awareness creation, and promotion (on the demand side).[76]<br>• A revolving fund was established by the World Bank and DBE, through which MFIs could provide funding to new and existing producers. However, as of the end of 2019, only 96 out of more than 1,000 businesses had access funding from the facility.<br>• GIZ has been supporting with the development of product standards (in line with international standards), which are required to improve consumer confidence and market growth | Access to finance is a challenge for producers, distributors and consumers. Barriers include:<br>• Very high collateral requirements set by banks and MFIs (often more than 100% of the loan), which limits the finance companies can raise<br>• Duration of loans for only three years, which is not suitable for manufacturers needing long-term finance to invest in developing new facilities or expanding existing ones<br><br>The lack of adequate finance affects the ability of producers and distributors to develop supply chains and increase the technical capacity of their staff.<br>Undeveloped supply chains limit the accessibility of products by rural consumers and make prices unaffordable<br><br>Private sector participation is weak—the market relies heavily on funding from the government and development partners. The Clean Cooking Alliance of Ethiopia was recently established and should act as a platform for clean cookstove manufacturers and distributors to shape national policies |

[76] Clean Cooking Alliance - https://www.cleancookingalliance.org/partners/item/999/2243

## Renewable energy projects in Ethiopia

| Power plant | Technology | Capacity (MW) | Cost (US $) | Year started | Year completed | Financier | Policy instrument | EPC/IPP |
|---|---|---|---|---|---|---|---|---|
| **Ashegoda** | Wind | 120 | 290 million | 2008 | 2013 | French | Public investment | Vergnet |
| **Adama I** | Wind | 51 | 117 million | 2009 | 2012 | China Ex-Im Bank (85%); EEP (15%) | Public investment | HydroChina |
| **Adama II** | Wind | 153 | 345 million | 2012 | 2015 | China Ex-Im Bank (85%); EEP (15%) | Public investment | HydroChina |
| **Aysha** | Wind | 120 | 257 million | 2017 | 2020 | China Ex-Im Bank (85%); EEP (15%) | Public investment | Dongfang Electric |
| **Aluto Langano** | Geothermal | 5 | 17 million | 2020 | 2021 | JICA grant | Public investment | Toshiba, Toyota Tsusho, Egesim Energy |
| **Corbetti** | Geothermal | 150 | 800 million | 2019 | 2023 for first 50MW | InfraCo Africa, Berkeley Energy, Reykjavik Geothermal, and Iceland Drilling | IPP: direct negotiations | Corbetti Geothermal |
| **Tulu Moye** | Geothermal | 150 | 800 million | 2019 | 2022 for first 50 MW | Meridiam (51%); Reykjavik Geothermal (49%) | IPP: direct negotiations | Tulu Moye Geothermal and KenGen |
| **Metahara** | Solar PV | 100 | 120 million (*price per kWh not disclosed*) | 2019 | 2020 | Guarantor: World Bank | IPP: competitive auctions | ENEL Green Power |
| **Gad–I Ditcheto–I** | Solar PV | 250 | 300 million *(bid price: 0.025/kWh*) | 2019 (RFP) | Not finalised | IFC scaling solar 1; guarantor: World Bank | IPP: competitive auctions | Saudi Arabia's ACWA |
| **Weranso, Welencheti, Humera, Mekele** | Solar PV | 500 | 570 million | 2020 (RFQ) | Not finalised | IFC scaling solar 2/MOFEC; guarantor: World Bank | IPP: competitive auctions | TBD |
| **Metema, Hurso** | Solar PV | 250 | — | Planned | Planned | IFC scaling solar 2/MOFEC; guarantor: World Bank | IPP: competitive auctions | TBD |
| **Assela** | Wind | 100 | — | Planned | Planned | IFC scaling wind/MOFEC; guarantor: World Bank | IPP: competitive auctions | TBD |

# ANNEX 2: INSTITUTIONS INTERVIEWED

- ATA
- Climate Analytics
- EFCCC
- EEA
- Ethiopian Chamber of Commerce
- Ethiopian Investment Commission
- European Commission
- Federal Democratic Republic of Ethiopia (FDRE) Ministry of Agriculture and Livestock Resources
- FDRE MOWIE
- GGGI
- MOFEC/CRGE Facility
- Ministry of Mines and Petroleum
- SouthSouthNorth
- UNDP
- UNOPS
- United States Embassy in Ethiopia