

Annex H: Ethiopia Country Study

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Executive summary

Ethiopia is an LDC and among the world's most climate-vulnerable countries, yet it is also among the least polluting of large nations with annual GHG emissions of about 190 MtCO_{2e}. Its large rural sector and reliance on hydroelectricity mean that land-based emissions dominate, through agriculture and forestry practices and use of fuel-wood. These factors imply that many Ethiopian stakeholders could see mitigation as a lower priority than adaptation and may expect that if mitigation actions are taken then they should promote adaptation as well. A climate response portfolio in Ethiopia might therefore be expected to focus on strengthening systems against weather-related stresses, including climate-smart land-use options for rural people, and energy options to meet increasing demand from renewable sources while reducing over-dependence on hydroelectricity and fuel-wood. The global and long-term perspectives are rather different, however, since a large country seeking a middle-income future may become a large GHG source unless low-carbon systems are built into its economy from early on.

The 2011 Climate-Resilient Green Economy (CRGE) strategy of the Government of Ethiopia (GoE) comprises components to promote 'climate resilience' (adaptation) and a 'green economy' (GE). The latter includes climate-smart agriculture and forestry, oriented both to adaptation and mitigation, as well as renewable energy (RE) and energy efficiency (EE), so is most relevant here. It is based on four pillars:

- improving crop and livestock production practices for higher food security and farmer incomes, whilst reducing carbon emissions;
- protecting and re-establishing forests for their economic and ecosystem services, including as carbon stocks;
- expanding electricity generation from renewable sources of energy for domestic and regional markets; and
- leapfrogging to modern and energy-efficient technologies in the transport, industry and construction sectors.

NDC mitigation aims. Based on the BAU scenario, the 2020 update of the 2017 NDC foresees GHG emissions in 2030 of 412 MtCO_{2e}. It is hoped to reduce these foreseen emissions to 192 MtCO_{2e} (i.e. around the present level) by applying a multi-sectoral approach based on the four pillars of the GE component of CRGE, at a cost of about USD 294 billion. The relevant baseline, foreseen BAU emissions, emissions after abatement, and estimated abatement costs all increased substantially in the 2020 update relative to the 2017 NDC, illustrating how uncertain these numbers can be. Moreover, the high cost estimates for abatement, of which at least 80% to be sourced internationally, leads the GoE to reserve the right to vary its priorities according to available resources. Danish interventions were well aligned with the capacities and needs indicated in the 2017 NDC, with investments in clean energy generation, low-emission agriculture and forestry.

Institutional responsibility for climate change evolved quickly after 2009, and the key bodies are now the Environment, Forests and Climate Change Commission (EFCCC) and the CRGE Facility at the Ministry of Finance (MoF). Denmark's support for the GE component of CRGE has focused on three of its four pillars, specifically agriculture, forestry and energy, but also included an early contribution to the Strategic Climate Institutions Programme (SCIP) which influenced institutional change and left some important legacies, while also teaching lessons on devolved approaches to climate action. The other mitigation interventions are:

- **an innovative and moderately effective thematic programme (GATE)** aimed to promote climate-smart farming through the ATA, which worked well, and also, with more difficulty, to help the CRGE Facility mainstream agriculture and forestry initiatives;
- **an ambitious wind-energy project (AWPGE)**, to strengthen the capacity of the government energy sector to accelerate wind power generation and establish wind tender procedures for independent energy suppliers, which made good

progress on wind energy assessment (Engagement 1), but slower progress on technical system integration and market transformation (Engagement 2);

- **a recently-begun participatory forest management and livelihoods project (CRFL)** that is working with a sub-national administration, so is encountering challenges in the form of partners' weak institutional capacity;
- **a recently-begun wind-farm project (AWFP)** with the state-owned electricity company Ethiopian Electric Power (EEP) that is being financed jointly by a commercial and a concessional lender and a Danish grant, being a new way for Denmark in Ethiopia to leverage funding at scale into RE; and
- **a recently-begun strategic energy sector cooperation (SESC)** between DEA and the Ministry of Water, Irrigation and Electricity (MoWIE) and EEP on energy planning and modelling, aiming to support national policy decision making, develop regulatory frameworks and prioritise public and private funding.

The Danish mitigation portfolio reflects strategic choices that have been made concerning aid modality, sector and implementing partner. These all respond to the national circumstances set by Ethiopia's climate change strategy, the CRGE, which has provided the overarching policy framework for Danish support.

A major challenge across the portfolio is the limited institutional capacity of national implementing partners. Building this capacity is a slow process, and is best done through long-term strategic partnerships, based on common interests, close dialogue, trust and agreement of needs and goals, with core funding and activity-based funding deployed over a number of years.

A final factor is the diversity of Danish institutions involved, which includes MFA (as an aid agency, as a financier through the IFU-managed DSIF, and as a diplomatic presence), and MCEU (through DEA). This calls for a high degree of collaboration and coordinated action if potential synergies are not to be lost. The Danish Embassy therefore has a critical role in building and maintaining the trust upon which development cooperation is founded.

1. National context of mitigation efforts

1.1 Overview of socioeconomic conditions

Ethiopia is classified by the UN as a Least Developed Country (LDC). The multi-faceted challenges that the country faces are reflected in the key social and economic indicators for 2019 that are listed in Table 1¹. The low level of economic development combined with a heavy dependence on rain-fed subsistence agriculture and high population growth make Ethiopia particularly vulnerable to the adverse impacts of climate change. The country has experienced strong economic growth in recent years, but it has historically been plagued by weather extremes (particularly droughts), resulting in large income swings. Climate change model predictions for Ethiopia indicate not only a substantial rise

¹ Some deterioration might be expected in these indicators in 2020, from the CoViD pandemic and military conflict in the Tigray Region.

in mean temperatures and an increase in rainfall variability but also a higher frequency of extreme events such as flooding and droughts.

Table 1: Ethiopia: Human Development Indicators, 2019

1. Human Development Index (HDI, rank of 189 countries)	173
2. Life expectancy at birth (years)	66.2
3. Expected years of schooling (years)	8.7
4. Gross national income per person (2011 PPP USD)	1,782
5. Inequality-adjusted HDI (raw HDI = 0.470)	0.337
6. Gender Development Index (GDI)	0.844
7. Employment to population ratio (% ages 15 and older)	78.9
8. Internet users, total (% of population)	18.6
9. Total population (millions)	109.2
10. Skilled labour force (% of labour force)	6.8
11. Corruption Perceptions Index (CPI, rank of 198 countries)	96

Sources: <http://hdr.undp.org/en/countries/profiles/ETH> (items 1-10); www.transparency.org/en/cpi/2019/results/eth (item 11).

1.2 Ethiopia's GHG emissions

Ethiopia is among the least polluting large countries, responsible for only 0.04% of global CO₂ emissions in 2017. Emissions of GHGs per person, at 0.3 tCO₂e in 2016 (Table 2), were far less than those in the other focal countries of this evaluation: South Africa, Indonesia and Vietnam, at 7.5, 7.0 and 2.1 tCO₂e per person respectively. The country's large rural sector and reliance on hydroelectricity mean that land-based emissions dominate, through agriculture and forestry practices and use of fuel-wood. These factors imply that many Ethiopian stakeholders could see mitigation as a lower priority than adaptation and may expect that if mitigation actions are taken then they should promote adaptation as well. With these immediate public priorities, a climate response portfolio in Ethiopia might be expected to focus on strengthening systems against weather-related stresses, including climate-smart land-use options for rural people, and energy options to meet increasing demand from renewable sources while reducing over-dependence on hydroelectricity and fuel-wood. The global and long-term perspectives are rather different, however, since a large country seeking a middle-income future may become a large GHG source unless low-carbon systems are built into its economy from early on.

Table 2: GHG emissions, sinks, sources and changes in Ethiopia

GHG emissions	Unit	2016 data
Total GHG emissions	MtCO _{2e}	190.1
Per-person GHG emissions	tCO _{2e}	0.31
Land-use change & forestry sources/sinks	MtCO _{2e}	23.1
Electricity & heat sources	MtCO _{2e}	0.0
Agriculture sources	MtCO _{2e}	109.5
Transport sources	MtCO _{2e}	5.3
Waste sources	MtCO _{2e}	4.7
Manufacturing & construction sources	MtCO _{2e}	3.7
Industry sources	MtCO _{2e}	3.5
Fugitive emissions	MtCO _{2e}	0.0
Other fuel combustion	MtCO _{2e}	37.8
Buildings	MtCO _{2e}	1.1
Aviation & shipping sources	MtCO _{2e}	1.4
Energy intensity	kWh per unit GDP in 2011PPP USD	0.44
Carbon intensity (2014)	kg/kWh	0.02
GDP per person % change since 1990	Δ%	165.4
Consumption emissions per person % change since 1990	Δ%	154.8

Source: <https://ourworldindata.org/co2/country/ethiopia?country=~ETH>

1.3 Ethiopia's climate policies and strategies

In 2011, Ethiopia adopted a Climate-Resilient Green Economy (CRGE) Strategy to respond to the challenges of climate change (GoE, 2011a; *ca* 2018a, b, c). This sets out a national framework for blending climate finance with development finance to maximise the effective delivery of climate-relevant objectives, across sectors and regions. It has components on Green Economy and Climate Resilience, of which the former is most relevant here.

The Green Economy component of CRGE aims to achieve economic development while ensuring environmental sustainability (GoE, 2011b). Economically, it focuses on achieving rapid growth in a resource-efficient way whilst taking advantage of the country's renewable energy (RE) resources. Environmentally, it seeks to cap GHG emissions at a low level while promoting carbon recapture through reforestation and afforestation and reducing emissions from forest degradation. Boosting agricultural productivity, strengthening the industrial base, and fostering export growth have been prioritised as vehicles for reaching these goals, including the avoidance of contradictions among them. It is therefore based on four pillars:

- improving crop and livestock production practices for higher food security and farmer incomes, whilst reducing carbon emissions;
- protecting and re-establishing forests for their economic and ecosystem services, including as carbon stocks;
- expanding electricity generation from renewable sources of energy for domestic and regional markets; and
- leapfrogging to modern and energy-efficient technologies in the transport, industry and construction sectors.

Around 150 potential climate change mitigation options across seven sectors were analysed based on their relevance, feasibility and potential for cutting emissions at a reasonable cost. More than 60 initiatives were then prioritised. These aim to help the country achieve its development goals while limiting GHG emissions. Implementation of the CRGE strategy follows a sectoral approach by establishing CRGE focal units in each sector at the national level, and it is expected to ensure a resilient economic development pathway while decreasing per-person emissions. Sector-specific strategies have been further developed with targets for emission-reduction and adaptation activities. Agriculture, forests and energy are among the priority sectors for government climate change-related investments.

The 2011 CRGE strategy was later integrated into the national five-year development plan for 2015-2020, known as the Second Growth and Transformation Plan (GTP-II; GoE, 2016), and its follow-on ten-year perspective plan for 2020-2030. This demonstrates the long-term policy commitment of the Government of Ethiopia (GoE) to building a green economy with carbon-neutral growth.

Ethiopia has vast renewable energy (RE) resources that include hydroelectric, wind, solar, and geothermal resources. Since the generation of hydroelectricity depends primarily on the availability of water, a dependence on large hydropower means that the power sector faces significant power shortages during periods of low rainfall. Other RE resources have yet to be developed on a scale sufficient to guarantee continuity of power supply in all circumstances.

Ethiopia has recognised that its solar and wind power resources offer viable supplements to hydropower. Various elements of an enabling regulatory regime for RE include the 2012 Electricity Feed-in-Tariff Law which encourages diversification of the power mix in the national grid, and the 2013 Energy Proclamation which defines the responsibilities of the Ethiopian Energy Agency and establishes standards for licensed generators and energy efficiency standards. Yet there are significant delays in finalising the legal regime under which independent power producers (IPPs) will operate, and this has delayed the diversification and expansion of the power generation in line with current national plans.

1.4 Ethiopia's Nationally Determined Contribution (NDC)

The mitigation aims in Ethiopia's first NDC (GoE, 2017) essentially recapitulate those of CRGE and GTP-II. These include using a multi-sectoral approach based on the four

pillars of the green economy component of CRGE. All major sectors are covered, which the NDC lists as "Agriculture (livestock and soil), Forestry, Transport, Electric Power, Industry (including mining) and Buildings (including Waste and Green Cities)." Relative to the 2017 NDC, the 2020 update (GoE, 2020a) recalculates and increases the emission baseline, foreseen BAU emissions in 2030, emissions after abatement, and estimated abatement costs, the latter to USD 294 billion. Of particular relevance to Ethiopia, and stressed in the NDC update, is that "the widespread use of biomass for energy services, in particular cooking, is an important source of emissions for which international GHG accounting rules lack clear direction" (page 5). Moreover, the high cost estimates for abatement, of which at least 80% must be sourced internationally, leads the GoE to reserve the right to vary its priorities according to available resources.

1.5 Institutional arrangements for the climate change response

The Environmental Protection Authority (EPA) became the national flagship institution for climate change after the UNFCCC CoP 15/2009 in Copenhagen and it oversaw the development of the CRGE strategy that has shaped Ethiopia's climate change response. In 2014, the EPA was replaced by a new Ministry of Environment and Forests and in 2015 this became the Ministry of Environment, Forests and Climate Change (MEFCC).

The new ministry played a leading role in matters relating to climate change, nationally as well as internationally until 2018, when further institutional change took place with the creation of the Environment, Forests and Climate Change Commission (EFCCC). This rapid institutional evolution responded to leadership changes, but also showed a consistent determination to consider climate change as one of the GoE's priority areas in dealing with the country's long-term development needs.

Another institutional innovation associated with the implementation of the CRGE Strategy is the CRGE Facility established within the Ministry of Finance and Economic Development, now the Ministry of Finance (MoF). Designed as a single, national funding mechanism, the Facility is intended to make it easier for the government to manage international climate funds, donor funds and domestic resources. Collaboration between MoF and EFCCC in managing the CRGE Facility underpins effective implementation of the programmes set out in the CRGE strategy, which itself requires strengthening of capacity at all responsible GoE institutions at all levels.

2. The Danish portfolio with Ethiopia

2.1 Overview of the portfolio

Denmark opened its Embassy to Ethiopia in 2004, with attention focused on developing relationships with African states through the African Union, which is headquartered in Addis Ababa. Denmark and Ethiopia then signed an Agreement on Development Cooperation in June 2012. The first Danish Country Policy Paper was prepared for the period 2018-2022, with an accompanying Country Programme document for the same period. Danish bilateral cooperation with Ethiopia is therefore very recent and has coincided with the development of the country's national climate change strategy. Both

the policy paper and country programme document are consistent with the CRGE vision for Ethiopia to achieve middle-income status in a climate-neutral and sustainable way, and Denmark's support for the GE component of CRGE focuses on three of its four pillars: agriculture, forestry and energy (Table 3). A timeline for these interventions is given in Annex B.

Table 3: Danish-funded projects and programmes evaluated in Ethiopia

Title	Reference	Timeframe	Climate Envelope (CE) or non-CE	Budget (DKK million)
Strategic Climate Institution Programme (SCIP, Annex d)	104.Etiopien.19-27.ADD	2012-2016	Non-CE	5.0
Greening Agricultural Transformation in Ethiopia Thematic Programme (GATE, Annex e)	014.Etiopien.805.ADD	2014-2018	Non-CE CE	150.0 27.5
Accelerating Wind Power Generation in Ethiopia (AWPGE, Annex f)	#2016-9613	2017-2020	CE	35.0
Climate Resilient Forests Livelihood Programme (CRFL, Annex g)	#2018-21742	2019-2022	CE	45.0
Assela Wind Farm Project (AWFP, Annex h)	#2018-14197	2020-2015	Non-CE	727.3
Ethiopia-Denmark Strategic Energy Sector Cooperation (SESC, Annex i)	#2020-7551 (#2018-46818 is sometimes used)	2020-2023	Non-CE	10.0

2.2 The Strategic Climate Institutions Programme

The Strategic Climate Institutions Programme (SCIP) was funded by the UK, Norwegian and Danish governments in support of the 2011 CRGE Strategy (Annex d). It ran from 2012-2016 and represented an early collective development partner response to the CRGE. It aimed to build the capacity of Ethiopian climate change institutions to respond to both adaptation and low carbon development. The programme supported a wide range of sub-projects which contributed, directly or indirectly, to mitigation objectives.

Lessons learned from SCIP were instrumental in building and re-organizing institutional capacity for climate action in the country. Specifically, the programme demonstrated a financial and project management model, which was later adopted by the national climate fund housed in the Ministry of Finance, the CRGE Facility. Its chief weakness, which is acknowledged by sub-project partners, was that the four-year timeframe did not allow national capacity to develop to the expected level. The very wide range of implementing partners also lessened the impact on any one institution. On the other hand, some

legacies of SCIP are still traceable through activities followed by many of the implementing organizations since its closure, including:

- the Ministry of Transport's climate resilient sector strategy in which the SCIP project involving the Ethiopian Railways Corporation is included; and
- SCIP support to the then MEFCC helped Ethiopia gain accreditation to the Green Climate Fund.

SCIP was a valuable opportunity for Denmark to learn lessons in taking a devolved approach in support of climate action. Denmark assumed the role of a 'sleeping partner', with programme implementation delegated to a trusted bilateral agency (the UK's DFID) that had greater resources to oversee the programme. Norway took a similar approach. Such coordinated arrangements follow aid effectiveness principles and in this case allowed Denmark, through a relatively modest financial contribution, to help establish Ethiopia's climate change strategy, despite the sustainability of some individual actions being compromised by the programme's short lifespan.

2.3 Greening Agricultural Transformation in Ethiopia

The 2011 CRGE Strategy identified the agriculture and forest sectors as having most potential to reduce GHG emissions. The objective of the Greening Agricultural Transformation in Ethiopia (GATE) thematic programme was to increase rural incomes in ways that were environmentally and socioeconomically sustainable (Annex e). This it would do through two components, focused respectively on the promotion of climate-smart farming² by the Agricultural Transformation Agency (ATA), and on mainstreaming CRGE initiatives in the agriculture and forestry sectors through the CRGE Facility.

The two partner institutions, ATA and the CRGE Facility, were well-positioned to deliver the aims of the two components and contribute to the intended mitigation outcomes. The ATA showed better project management and implementation capacity than the CRGE Facility. As a result, the ATA had relatively smooth communication with the Danish Embassy, whereas the CRGE Facility's engagement was more challenging.

Support for the development of a GHG accounting framework for the agricultural sector was intended to fill the GHG measurement capacity gap in the country. However, development of a software tool by the programme was project- and sector-specific and did not consider compatibility issues with the nationally-used platform at EFCCC. As a result, implementation of the tool was discontinued. This demonstrates the importance of coordination between government institutions for sustainability.

The GATE thematic programme was designed prior to the preparation of a country policy paper and a country programme, so it was an innovative step by the Danish

² Climate-smart farming is understood to mean: "using approaches that proactively facilitate environmentally sustainable agricultural development and promote adaptation and resilience to a changing climate through (a) development/rehabilitation of the natural resource base and more sustainable and efficient use of natural resources (b) minimizing environmental impacts such as pollution; (c) contributing to low-carbon economic development; (d) minimizing the vulnerability of human and natural systems to extreme climate events due to climate change, and (e) building capacity of farmers and other stakeholders to adjust and respond to the effects of climate change" (Danida, 2014a, p. 3, footnote 3).

Embassy. The design was ambitious, with funding being blended from the Climate Envelope and development funds to support two very young national institutions within the government administration. The GATE programme was designed in a programmatic way, but there is no evidence of any interaction or lesson learning between the two components, or between the two implementing partners. The latter, moreover, had no platform for sharing experiences and lessons during implementation.

Both the CRGE Facility and the ATA are situated at the heart of government's strategic response to climate change. Through the GATE programme, the ATA was able to secure the inclusion of 'green' indicators in the performance framework of the national development plan. This helped ensure that the programme delivered strategic results.

2.4 Accelerating Wind Power Generation in Ethiopia

Expanding electrical power generation from RE sources is one of the four mitigation action pillars of Ethiopia's CRGE strategy. The development of wind farms (in addition to solar PV) has emerged as an important way to alleviate and prevent energy shortfalls, but the country lacks sufficient experience to use these resources most effectively. The Danish government, offering advanced wind power generation and associated technologies, extended its support through the Accelerating Wind Power Generation in Ethiopia (AWPGE) project to the Ministry of Water, Irrigation and Electricity (MoWIE) to strengthen the GoE's efforts to exploit the country's abundant wind power resources (Annex f).

The project identified crucial bottlenecks in expanding wind power generation and intervened accordingly through two 'engagements'. Engagement 1 was to enhance the capacity of wind resource assessment with which potential investors could develop bankable investment proposals. Engagement 2 was to facilitate the investment environment in which the private sector could play a significant role through an IPP modality, while also building complementarity of wind with hydropower through system integration and improving service quality in electricity distribution.

The ambition of the second Danish engagement was considerable, since the starting position was a single market in which the state-owned company Ethiopian Electric Power (EEP) generated, transmitted and distributed all electricity. The intended outcome was to have multiple energy producers feeding into the grid, and the GoE cancelled engineering, procurement and construction contracts to signal its intention to proceed with this transition. Yet, to move from a state-owned monopoly to a private sector and participatory market requires major changes to energy planning, policies, legislation, regulations and operations. Moreover, such shifts tend to be socially sensitive, and so it proved in Ethiopia.

The project started in 2016. The first engagement focused on wind resource assessment and was relatively straightforward. Engagement 2 was far more complex, and although work to reduce power curtailment progressed well, none of its other activities were expected to be completed by project's end. Despite World Bank support to GoE's efforts on IPP for solar tendering (which would pave the way for wind tendering), delays

resulted from the need for collaboration between several GoE institutions, slow IPP site selection, and travel restrictions imposed by the CoViD pandemic.

2.5 The Climate Resilient Forests Livelihoods Programme

As part of Denmark's 2018-2022 country programme for Ethiopia, the Climate Resilient Forests Livelihoods (CRFL) Programme aims to secure improved and climate resilient livelihoods, while maintaining and enhancing carbon stocks and other ecosystem services and products (Annex g). The design of CRFL was influenced by a previous Danish-supported project in the Kafa Biosphere Reserve under the GATE programme, and it follows international good practice by transferring forest rights to local communities through participatory forest management (PFM). The latter, combined with promoting local livelihood opportunities, is the GoE's main forest conservation strategy. In this approach, carbon sequestration, biodiversity and other environmental benefits are expected to materialise as forest degradation is halted and degraded forests regenerate, while livelihoods are safeguarded and improved.

Neither the previous project nor CRFL was able to develop a baseline for carbon stock measurement. Progress on enhancing carbon stocks will instead be assessed using the proxy outcome indicator of an increased area of forest covered by sustainable management plans, with the modest goal of increasing this by 9,750 ha (1% of the Kafa Biosphere Reserve) over four years. The value of this proxy indicator relies on the reasonable assumptions that retaining forest cover will avert land-based emissions, and that carbon will accumulate in the managed forest over time. The first is certainly true, but the second is unsupported by direct knowledge of these particular ecosystems under management, a constraint that applies to many ecosystem-based mitigation projects due to limited empirical research.

The CRFL involves the regional government of the Southern Nations, Nationalities and Peoples' Region (SNNPR). Working with subnational government is a significant strategy for Danish mitigation efforts in the forest sector, as zonal and local government administrations are responsible for promoting forest conservation and livelihood improvements. It brings risks due to low institutional capacity, however, which may help to explain why CRFL has already been set back by late reporting of annual plans and activity reports, leading to communication problems between the partners, and delays in budget disbursements.

2.6 The Assela Wind Farm Project

The Assela Wind Farm Project (AWFP) is intended to deliver an average of 330 GWh annually to the national grid by 2025 (Annex h). By arrangement with EEP, the state-owned transmission system operator and power company, it is being financed through a mix of Danish concessional, commercial and grant sources, including elements from Danske Bank and Danida Sustainable Infrastructure Finance (DSIF, formerly Danida Business Finance, DBF), which is managed by the Danish government's Investment Fund for Developing Countries (IFU; see Section 5.5. of the Main Text, and Annex O). All previous Danish interventions in Ethiopia had worked exclusively through public

funding channels, so this hybrid financing approach is a new departure. It is at sufficient scale to make a significant contribution to the country’s clean energy supply, and the quantity of specialist financial and technical expertise provided by the implementing partners are commensurate with the scale of the project. Construction is underway and will take five years (including three years of operation and on-site training) before the project hands over to EEP, so its full impact cannot yet be gauged.

2.7 Ethiopia-Denmark Strategic Energy Sector Cooperation

As highlighted by MoWIE in the 2017 National Electrification Programme (NEP), the GoE aims to diversify its energy mix with wind, solar and geothermal sources to complement the existing large hydroelectricity base supply and improve energy security. The NEP also envisions 100% electrification coverage by 2025, 35% off-grid and 65% on-grid, with the grid extending to reach 96% of households by 2030. The Strategic Energy Sector Cooperation (SESC) partnership, which is between DEA, MoWIE and EEP, began in April 2020 (Annex i). It aims to support cost-efficient long-term energy modelling and planning, thus helping the GoE to reach these national targets of energy security and electrification. Through the new partnership, DEA is building on relationships with MoWIE and EEP in the AWPGE and AWPFP projects, so all the institutions have started to obtain an understanding of their respective capacities and approaches. This contributed to allowing plans for the first months of SESC to be followed on schedule.

2.8 Danish interventions in relation to NDC commitments

Not all the sectors identified as targets in the NDC correspond to interventions by Denmark, but those that do include the most important for reducing GHG emissions: agriculture, forestry and energy. The resulting points of alignment between the updated NDC and the Danish interventions reviewed here are indicated in Table 4. This strong alignment with the NDC reflects the fact that Denmark is supporting the CRGE Strategy with which the NDC is itself aligned.

Table 4: NDC mitigation commitments and Danish interventions in Ethiopia

NDC commitments (GoE, 2017, 2020a)	Response in the form of Danish interventions
NDC strategic goal: cap net national GHG emissions in 2030 at about the same as the present level (ca 190 MtCO _{2e}).	All interventions were aligned with the strategic goal of stabilising emissions, being expected to reduce emissions either directly or indirectly. However, the scale of these emission reductions has not been estimated for the agriculture and forestry projects due to the challenging methodological issues involved.
NDC strategic priority 1 - CRGE implementation. Implement CRGE to reduce per person emissions.	Danish projects support the reduced emission development in the strategic sectors of agriculture and forestry, which the NDC identified as having greatest emission reduction potential for Ethiopia.
NDC strategic priority 2 - low-carbon	SCIP, AWPGE and SESC were designed to help

development. Integrate CRGE with GTP-II to seek carbon neutrality and middle-income status.	build the country's capacity to realise the CRGE Strategy and the national development plan.
NDC strategic priority 3 - International support. Seek support to stimulate mitigation-relevant investment.	Alignment is promoted by SESC, and also through financing of the AWPFP through a Danish consortium.
NDC sectoral priority 1 - Agriculture. Improve crop and livestock production while reducing emissions.	The GATE thematic programme and ATA support were closely aligned with the sectoral priority of low-emission agricultural development.
NDC sectoral priority 2 - Forestry. Protect and re-establish forests for their economic and ecosystem services, including carbon storage.	The GATE thematic programme and CRFL included work in the forestry sector that aligned with the CRGE, GTP-II and NDC. All stressed the importance of emissions and abatement potential in agriculture and forestry. GATE initiated PFM work in the Kafa Biosphere Reserve which was later carried on by CRFL.
NDC sectoral priority 3 - RE generation. Expand electric power generation from RE.	Ambitious energy and renewable energy targets underpin the AWPGE and SESC, and AWPFP is another major RE project.
NDC sectoral priority 4 - Energy efficiency. Leapfrogging to modern and energy efficient technologies in transport, industry and building sectors.	A contribution of SCIP would have been the energy efficiency regulatory framework development and implementation, though it suffered from lack of capacity transfer. The SESC is more about capacity building than technology transfer.
Other NDC priority: seek to update the NDC periodically.	"Ethiopia is assessing CRGE's implementation progress in order to revisit and update the CRGE and the NDC." ³ In support of this process, the Danish-supported NDC Partnership is undertaking a 'Stage 2: Rapid Assessment and Interventions Scoping Exercise' in Ethiopia.
Other NDC priority: sale of electric power to neighbouring countries.	In the AWPFP, "Ethiopia is constructing high voltage power lines to the neighbouring countries aiming at increasing the export of electricity." (IFU & DBF, 2018: 5). The AWPGE and SESC are also aligned with this priority in the form of reduced curtailment and increased generation efforts. Thus, Denmark's efforts to promote RE in Ethiopia are explicitly formulated in the context of this alignment.

3. Conclusions

The Danish mitigation interventions in Ethiopia varied considerably in their design quality, with excellent design in AWPFP and Engagement 1 of AWPGE, good design for SESC, weak design in Engagement 2 of AWPGE, and the other projects being moderate in design with both good and bad points (Table 5). Of the four interventions for which

³ <https://ndcpartnership.org/countries-map/country?iso=ETH>

performance could be assessed, Engagement 1 of AWPGE performed well, GATE and SCIP's performances were moderate, whilst Engagement 2 of AWPGE was weaker.

Table 5: Design and performance scores for Danish mitigation interventions in Ethiopia

Project	Design	Impact	Effectiveness	Efficiency
SCIP	5	3	4	4
GATE	4	4	4	4
AWPGE Engagement 1	6	3	5	6
AWPGE Engagement 2	3	2	2	3
CRFL	4	-	-	-
AWFP	6	-	-	-
SESC	5	-	-	-
Mean	4.7	3	3.8	4.2
Description	Good	Weak/Moderate	Moderate	Moderate

The country's climate change strategy, the CRGE, provided an overarching policy framework in which Danish climate mitigation support operated. Strategic choices have been made quickly and opportunistically concerning modality, sector and implementing partner, in response to these national circumstances.

As the NDC (GoE, 2017) makes clear, Ethiopia's response to climate change is consistent with the principle of Common but Differentiated Responsibilities, and adaptation clearly has a greater attraction for public investments than mitigation. Even so, the country has ambitious mitigation intentions, and areas where these two priorities overlap have naturally tended to attract attention. This is reflected in Danish mitigation support in the agriculture and forestry sectors, as well as the more mitigation-specific energy sector, where Danish expertise in wind energy attracted the interest of a GoE concerned over energy security. Meanwhile, the agriculture and forest interventions are strategically important both for reducing carbon emissions and in furthering progress towards SDG goals 2 and 15 on food security and land degradation.

A major challenge that Danish interventions have faced, and continue to face, is the limited institutional capacity of their national implementing partners. Building this capacity is a slow process, and hard to achieve in projects of short lifespan. The best way to do it is through long-term strategic partnerships, founded on common interests, close dialogue, trust and agreement of needs and goals, with core funding and activity-based funding deployed over a number of years. Moving toward long-term institutional partnerships is a strategy that is now beginning to be observed in the energy sector; less so in the agriculture and forestry sectors.

A final characteristic of the Danish mitigation portfolio is the diversity of Danish institutions involved. The MFA (as aid agency and diplomatic presence), MCEU through

DEA, and the DSIF/IFU development finance institution, are all active in delivering Danish support, in some cases alongside the Danish NGO Verdens Skove and perhaps others. This reflects the complexity of the response to climate change and calls for much collaboration and coordinated action. Each institution brings different skills and perspectives that can be useful, but without very active management potential synergies can be lost. The role played by the Danish embassy is vital, as it is close to the political priorities of GoE and is able to build the trust that is so necessary to development cooperation. An example of this in action was the Danish-Ethiopian leadership shown over the Energy Transition Track, supported by Sustainable Energy for All, at the UN Climate Action Summit in New York in September 2019.

Annex a: Information sources for the Ethiopia country study

Process of country study development

All country studies were developed in the following ways. The core team first studied each project and programme, using the format in Annex G and documents provided by MFA and other sources. These drafts and supporting documents were reviewed by the country team, who also conducted interviews, site visits and additional documentary research according to a workplan developed and implemented in dialogue with the core team. The country team then prepared: (a) situation analysis of issues, constraints and opportunities surrounding the country's efforts to achieve realistic, strategic progress on climate change mitigation; (b) corrections and additions to the project and programme reviews as necessary; (c) commentaries on the Danish interventions in relation to the situation analysis and alignment with the NDC, with supporting documents as needed; (d) completion of missing data and document files as needed; and (e) suggestions for lessons learned, recommendations, and other matters for the evaluation to consider. These materials were synthesised by the core team into the draft country report, which was reviewed by the country team before being finalised by the core team.

Persons and institutions consulted in the Ethiopia country study

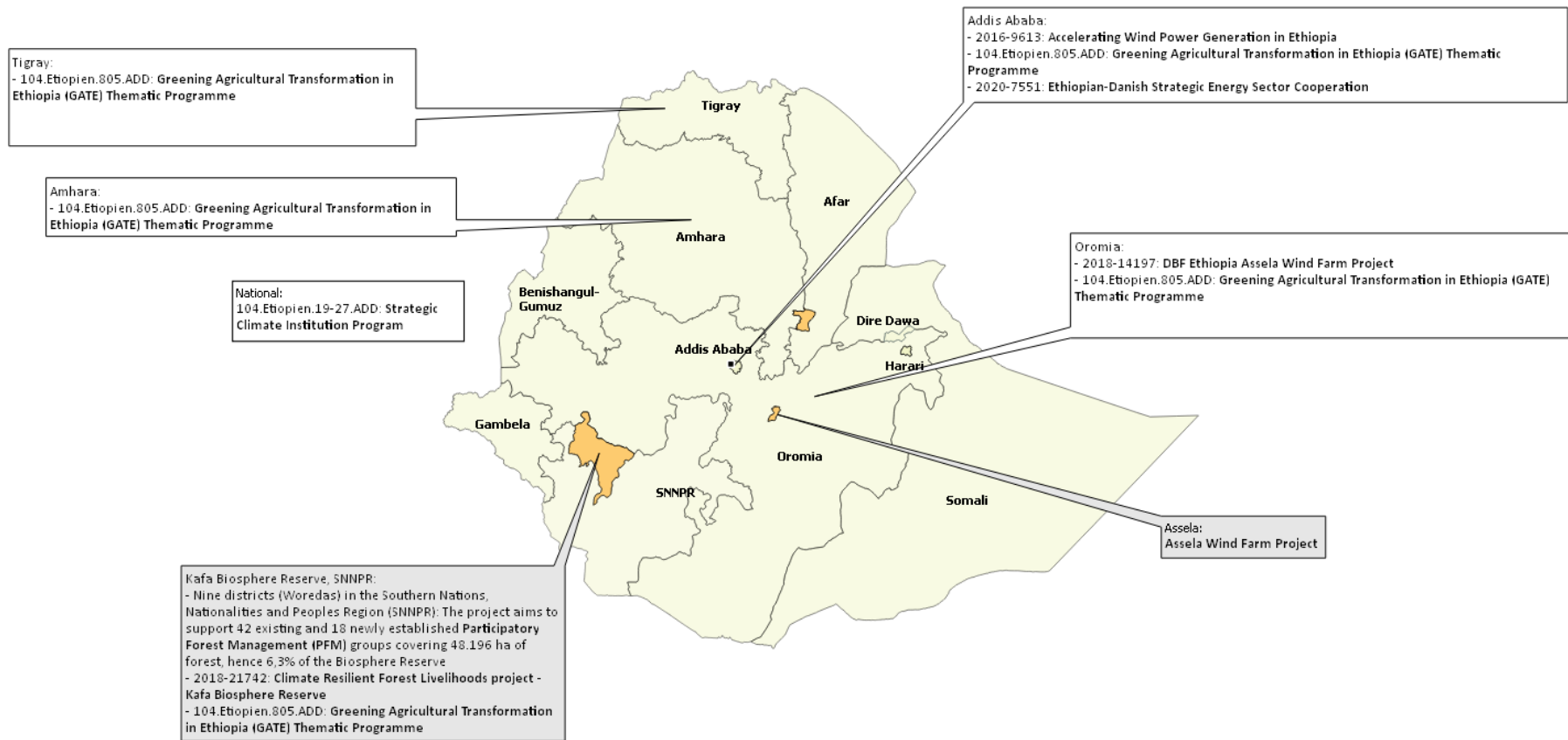
Institution	Relevance	Interviewee, role, contact, date
Agricultural Transformation Agency	Annex e (GATE)	Girmaw Gezahegn (Senior Project Officer, Cross Cutting Initiatives, 28 Oct 2020), Dr Wegayehu Bekele (former GATE program coordinator, 13 Nov 2020).
CRGE Facility, MoF	Annex e (GATE), Annex g (CRFL)	Aduugna Nemera (CRGE Facility M&E Head) and Medhin Fessiha (CRGE Facility Expert), 26 Oct 2020.
Climate Innovation Centre	Annex d (SCIP)	Tehut Tesfaye (CEO, 5 Nov 2020).
Danish Embassy	Annex e (GATE), Annex f (AWPGE), Annex g (CRFL), Annex i (SESC)	Jens Skov-Spilling (Head of Energy Cooperation) and Trine Louise Hansen (First Secretary, Bilateral Affairs), 02 Nov 2020.
Danish Embassy	Annex e (GATE), Annex g (CRFL)	Tigist Ayalew (Senior Programme Officer, 02 Nov by telephone, and 12 Nov 2020).
DEA	Annex f (AWFP), Annex i (SESC)	Cecile Buch Thomsen (adviser, 10 Nov 2020).
Echnoserve Consulting PLC	Annex e (GATE)	Dr Daniel Fikereyesus (Manager, 10 Nov 2020).
EFCCC	Annex e (GATE), Annex g (CRFL)	Kabtamu Girma (Director General – Forest Protection Directorate) and Dagne Mamo (PFM Law Enforcement Head), 2 Nov 2020.
EFCCC	Annex e (GATE), Annex g (CRFL)	Benti Firdissa (MRV Director, 24 Nov 2020).
IFU	Annex h (AWFP)	Lars Christian Oxe (Senior Impact Advisor), Annelise Boysen (Investment Director, DSIF), Shahid Abdullah (Investment Director, DSIF).
KPMG	Annex d (SCIP)	Arsema Andargachew (former SCIP Program Officer, 5 Nov 2020).
MoA	Annex e (GATE)	Berhanu Assefa (Director, Environment and Climate Change Coordination Directorate, 9 Nov 2020).
MoWIE	Annex f (AWFP), Annex i (SESC)	Yiheyes Eshetu (Director, Energy Study, 30 Oct & 24 Nov 2020).
World Bank	Annex d (SCIP)	Welela Ketema (Project Manager, 12 Nov 2020).

Annex b: Timeline of Danish projects and programmes in Ethiopia

Year	Ethiopia (ET)	SCIP	GATE	AWPGE	CRFL	AWFP	SESC
2009	UNFCCC CoP 15/2009 in Copenhagen.						
2010	Environmental Protection Authority (EPA) leads on climate.						
2011	Climate-Resilient Green Economy (CRGE) Strategy. UNFCCC CoP 17/2009 in Durban: CRGE Facility launched.						
2012	Electricity Feed-in-Tariff Law to encourage diversification of power mix in the grid. CRGE Facility (2012-2030) at new Ministry of Finance and Economic Development (later Ministry of Finance) with UNDP (Multi-Donor Trust Fund Office) support.	Strategic Climate Institutions Programme (SCIP) starts (2012-2015).					
2013	Energy Proclamation on Ethiopian Energy Agency and standards for generators & EE.						
2014	Ministry of Environment and Forests (MEF) leads on climate.		Greening Agricultural Transformation in Ethiopia (GATE) Thematic Programme starts (Dec 2014-Dec 2018).				

2015	Ministry of Environment, Forests and Climate Change (MEFCC) leads on climate.	SCIP extended (2015-2016).			
2016	Second Growth and Transformation Plan (GTP-II, 2015-2020 & vision to 2030).	SCIP ends.			
2017	First Nationally Determined Contribution (NDC). Launch of the National Electrification Programme to reach universal access to electricity by 2025.		Accelerating Wind Power Generation in Ethiopia (AWPGE) starts 2017-2021).		
2018	Environment, Forests and Climate Change Commission (EFCCC) leads on climate.	GATE Thematic Programme ends (Jun).		Climate Resilient Forests Livelihoods (CRFL) Programme starts (Jan 2019-Jul 2023).	
2019				Assela Wind Farm Project (AWFP) agreed.	
2020	CoViD pandemic. Military conflict in the Tigray region.		AWPGE extended (Jan-Jun 2021).	AWFP start up and construction phases.	Ethiopia-Denmark Strategic Energy Sector Cooperation (SESC) starts (Jan 2020 - Jan 2023).

Sources: (a) <http://mptf.undp.org/factsheet/fund/3ET00>; (b) http://www.mofed.gov.et/documents/10182/32129/GTP+II_2016.pdf/c2a64edb-f985-4111-bf0c-069b9fd22576; (c) text and annexes.



Annex c: Map of Ethiopia with key project locations

Annex d: The Strategic Climate Institutions Programme

Part A: Basic data

A1. Project number & name. 104.Etiopien.19-27.ADD: Strategic Climate Institutions Programme (SCIP)

A2. Interviews. See Annex a, persons and institutions consulted relevant to Annex d.

A3. Dates & financial data. Grant of DKK 5.0 million as un-earmarked funding signed on 10 December 2012, for a three-year project, 2012-2015. A no cost extension extended the programme through to June 2016.

A4. Location(s). National

A5. Partners. MFA and the Department for International Development, UK

Part B: Purpose and relevance

B1. Purpose. The goal of the Strategic Climate Institutions Programme (SCIP) was to enable Ethiopia to achieve its MDGs through the better management of climate change risks and opportunities. The project purpose was to build organisational and institutional capacity within the Ethiopian Government, civil society and the private sector.

There were five objectives of the program: (i) supporting Ethiopia's climate strategy process, (ii) building capacity to increase resilience to current climate variability, (iii) strengthening co-ordination to adapt to future climate change, (iv) supporting Ethiopia's engagement in the international climate negotiations, and (v) engaging the private sector (Danida, 2012a).

The only mention of a climate mitigation objective at the design stage may be inferred from the aim to support the Climate Innovation Centre in providing "business incubation services to small/medium enterprises specialising in low carbon technologies and solutions" (Danida, 2012b). Nevertheless, 10 out of 27 projects supported by SCIP had mitigation outcomes.

B2. Relevance to partners.

For **Ethiopia**, SCIP was designed as an intervention in support of building the country's capacity to realize the CRGE Strategy and the national development plan.

For **Denmark**, SCIP was seen to be fully compatible with Danida's strategic priority on Green Growth, which focused on strengthening the efforts of developing countries to promote and

stimulate green growth.

For the **UK**, SCIP was a flagship climate change initiative within the UK's development cooperation programme in Ethiopia.

B3. Relevance to MDGs/SDGs. The goal of the programme was broadly stated as "enabling Ethiopia to achieve its Millennium Development Goals through the better management of climate change risks and opportunities" (Danida, 2012b)

B4. Relevance to NDC mitigation commitments. SCIP pre-dated the NDC, but in principle was aligned with NDC strategic priority 2 - low-carbon development.

B5. Relevance to mitigation. Mitigation verification criteria met: Mitigation ecology (ME); Mitigation technology (MT); Capacity building (CB).

Part C: Narrative overview

Financial support was provided to the Strategic Climate Investment Programme (SCIP) that had been developed by another bilateral agency (DFID, UK) in consultation with the Government of Ethiopia and other stakeholders. The planned support consisted of a Programme Fund, which supported 27 sub-projects, and a Climate Innovation Centre (CIC) aimed at supporting the private sector. An international consultancy (KPMG) acted as the SCIP Fund Manager; whereas the World Bank managed the CIC. However, in the end, Danish funds were not used to support the CIC.

The Danish contribution to the SCIP was limited to the grant and participation in annual meetings between the lead donor and the fund managers. Project implementation was delegated to the lead donor (DFID); the partner agreement is specific: "The Co-Donor [i.e. Denmark] will carry no responsibility or liability for the implementation of the Programme (Danida 2012b, paragraph 4). Norway was also a co-donor to SCIP, under similar terms to Denmark. Hence, Denmark adopted the role of a 'sleeping partner' devolving the programme implementation responsibility to another trusted development partner.

A large number of climate mitigation relevant initiatives were supported, which led to some strengthened institutional capacity for climate action. Among the projects 'Building institutional capacity and participatory leadership in Awash and Simien national parks for resilience, mitigation and adaptation to climate change' was an example that was positively

rated. However, the principal weakness, acknowledged by the project partners, was the limited timeframe of support that did not allow national capacity to develop to the expected level. The very wide range of implementing partners lessened impact on any one institution.

Part D: Design quality

D1. Theory of change. Program documents assume that the government lacked capacity to address climate change within the national development planning process. Further, that such capacity constraints applied also to academia, civil society and the private sector, holding back the national response to climate change. The SCIP program was designed to strengthen capacity across this very broad of players so that Ethiopia as a country would be better placed to manage the risks and opportunities associated with climate change (Danida, 2012a)

D2. Assumptions underlying the theory of change.

Assumption 1. Three years were sufficient to secure the institutional capacity aimed for.

Assumption 2. Institutional capacity building would allow more effective climate actions.

Assumption 3. Marginalized people would be more able to withstand climate shocks.

D3. Plausibility of assumptions and links. (1) Institutional capacity building is a slow process. Without a capacity needs assessment to determine the constraints faced by each institution, the plausibility of the first assumption is low. This is compounded by the huge range of institutions that the programme attempted to support, from government agencies, civil society organisations, academia and the private sector. These institutions would likely have very different constraints on their capacity to engage on climate issues. There is no mention in the objectives that capacity for mitigation actions would be addressed. (2) Effective action requires attributes in addition to institutional capacity to overcome the range of financial, knowledge and regulatory barriers that constrain effective climate action. (3) The third assumption is tenuous. Ethiopia has strong climate and development policies; but it is less clear that indirect beneficiaries might be supported, at least over the short-term. This is also a climate change adaptation objective – not a climate mitigation one.

D4. General quality of the project design. Score: 5

Part E: Evidence for mitigation performance

E1. Direct effectiveness. From the design documentation there were no signs that the project had or plausibly could have had a direct, near-term effect in reducing net GHG

emissions.

E2. Indirect effectiveness. Six thematic clusters were highlighted in the SCIP Fund final report: climate change planning and set up; climate change negotiations and knowledge management; energy and transport; industry and green enterprises; agriculture, forestry and NRM; and water and protected areas (KPMG, 2016). Mitigation-relevant projects can be found in several of these clusters:

- Capacity building to monitor and track mitigation activities in Ethiopia. This important initiative was reported (KPMG, 2016) to have led to:
 - Guidance for monitoring the emissions from agriculture enterprises adapted to the Ethiopian context and agriculture guidance tested on 11 farms, with a MoA led working group.
 - Guidance for monitoring the emissions from industry adapted to the Ethiopian context and industry GHG inventory report produced for Messebo Cement Company.
 - Guidance for monitoring the emissions from cities adapted to Ethiopian context and Addis Ababa city GHG inventory published.
 - Interactive land use emissions atlas produced and handed over to MEFCC (Forestry Department).
 - Institutional arrangement for MRV assessed, summary report produced, and IT-based MRV database produced and handed over to MEFCC and training delivered to MEFCC.
- Local level initiative for CRGE – creating a carbon sink while promoting clean and efficient energy utilisation; energy access NAMA development; energy efficiency regulatory framework development and implementation; and feasibility study ethanol national scale up programme (ethanol stoves and micro distilleries; and development of a project design document for CDM on common effluent treatment plant.
- Enhancing the role of forest in Ethiopia's CRGE: a knowledge, action research and innovation project.

In addition, the NGO 'Vehicular-Smogless Air for Ethiopia' (V-SAFE) was granted funds for a two-year vehicle-emission reduction project in Addis Ababa (the VERA project; SCIP, 2015). This aimed to raise public awareness of air pollution, to train AA-EPA staff and others in how to inspect and fix polluting vehicles, to design pilot inspection and maintenance programme for city government, and to test pollution in a sample of diesel-fuelled vehicles to document their contribution to deteriorating ambient air quality (building on a 2012 study by

V-SAFE⁴). Although the project focused on carbon monoxide (CO) and unburned hydrocarbons (HC), rather than GHGs such as CO₂ and N₂O, emissions of all pollutants are likely to be reduced as engine efficiency is increased through repair and maintenance. The project had a logframe indicator of "25% of HC and CO vehicle emission reduction in Addis Ababa's ambient air achieved" and claimed to exceed it, but this is ambiguous and anyway could not have been achieved with the means used. The VERA project did however start a process that could have led to improved air quality and reduced GHG emissions, and the V-SAFE studies were still being discussed in the local media in 2019 (Addaney & Jegede, 2020). There is no evidence that the NGO or the pollution control effort continued after the VERA project, and in all the SCIP sub-projects a lack of time inhibited capacity transfer, sustainability and influence (KPMG, 2016).

E3. Net GHG emission reductions None documented (as noted, the sole relevant target and claims of the VERA project are implausible).

E4. Impact effects. The VERA project trained AA-EPA officers and others, and imported emission measuring equipment which was handed over to AA-EPA. Although AA-EPA (with support from MoT) was expected to continue monitoring emissions in Addis Ababa city, and to use the information to develop a policy on vehicle emissions control, there is no evidence that this occurred. According to the former SCIP program officer, although the project envisioned a city-wide impact in controlling and reducing vehicle emissions, the lessons learned and the capacity built as a result of the project have not been taken up and continued by either the Ministry of Transport or the AA-EPA.

E5. Sustainability effects. The SCIP Fund final report stated "working with and through the Government and on the basis of their strategy (CRGE) has increased the sustainability of SCIP (KPMG, 2016). Most government organizations at federal level have established CRGE units and the staff leading these units are the result of SCIP intervention. The climate focus which was supported by the SCIP fund has supported the MoT to develop a climate resilient sector strategy. The former MEFCC (now EFCCC) benefited from SCIP support to develop the capacity of climate change negotiators for the country. As the VERA project shows, however, sustainability of many of the supported sub-projects was not secured.

E6. Efficiency issues. No information.

E7. Capacity building issues. Danida's project completion report stated "while there have been measurable changes in capacity, there remains a serious gap in the government capacity. To fill this capacity gap will require long term change and commitment by all stakeholders at both the sub-national and federal levels" (Danida, 2016a).

E8. Baseline and monitoring arrangements. Some of SCIP supported projects included baseline studies (e.g. projects implemented by two national NGOs: the Guraghe Development Association and the Institute of Sustainable Development).

E9. Overall conclusion on mitigation performance. Score: 4

Part F: Other aspects of design and performance

F1. Unintended consequences. None noted.

F2. Other performance issues. Partnerships: the SCIP was expected to play a "crucial coordinating role between the government and around development partners" (Danida, 2012a). The arrangement entered into by Denmark was "to improve donor coordination and harmonization through delegated cooperation, thereby reducing the administrative burden of the applicants, and enhancing the efficiency of the Donor's development cooperation" (Danida, 2012b). **Other:** The Fund Manager's final report claims that 2.6 million people were better able to cope with climate shocks as a result of the programme investments (KPMG, 2016). While a notable result, it is an adaptation impact.

Annex e: Greening Agricultural Transformation in Ethiopia

Part A: Basic data

A1. Project number & name. 014.Etiopien.805.ADD: Greening Agricultural Transformation in Ethiopia (GATE) Thematic Programme

A2. Interviews. See Annex a, persons and institutions consulted relevant to Annex e.

A3. Dates & financial data. December 2014 - December 2017, with a no-cost extension agreed for the CRGE Facility to June 2018.

Grant of DKK 177.5 million, consisting of two components:

Support to Agricultural Transformation Agency, DKK 150 million (non-Climate Envelope)

Support to CRGE Facility, DKK 27.5 million (Climate Envelope)

A4. Location(s). Agricultural activities in four regions: Tigray, Amhara, Oromia and SNNPR.

The forestry project '*Protection and rehabilitation of the Bonga Biosphere Reserve and enhanced livelihoods of five districts*' implemented by the CRGE Facility was in Kafa Zone, SNNPR.

A5. Partners. Danish MFA; Ethiopian Ministry of Finance, with two implementing partners:

- Agricultural Transformation Agency, which is an independent public institution with the purpose of catalysing agricultural transformation.
- The CRGE Facility, which is the national climate fund housed in the Ministry of Finance. The CRGE Facility aims to mobilise funding for the implementation of Ethiopia's Climate Resilient Green Economy (CRGE) Strategy and allocates such funding to implementing entities.

Part B: Purpose and relevance

B1. Purpose. The objective of the GATE thematic programme was to increase rural incomes in ways that were environmentally and socioeconomically sustainable (Danida, 2014a). The Danish support was designed: (i) to accelerate a 'green' transformation of the agricultural sector with a focus on small-holder farmers; and (ii) to gather speed to the mainstreaming and implementation of Ethiopian CRGE initiatives within agriculture and forestry (Danida, 2014b).

The thematic programme consisted of two engagements:

Engagement objective 1 (the ATA engagement) was to implement the Agricultural Transformation Agenda in a 'climate smart' manner. The meaning of 'climate smart' is: "using approaches that proactively facilitate environmentally sustainable agricultural development and promote adaptation and resilience to a changing climate through (a) development/rehabilitation of the natural resource base and more sustainable and efficient use of natural resources (b) minimizing environmental impacts such as pollution; (c) contributing to low-carbon economic development; (d) minimizing the vulnerability of human and natural systems to extreme climate events due to climate change, and (e) building capacity of farmers and other stakeholders to adjust and respond to the effects of climate change" (Danida, 2014a, p. 3, footnote 3).

Engagement objective 2 (the CRGE engagement) was to strengthen the Government of Ethiopia's efforts to mainstream and implement CRGE initiatives in the agriculture and forestry sectors, in line with the national CRGE Strategy, which aims at reaching middle-income status by 2025 with net-zero greenhouse gas emissions, while simultaneously building climate change resilience (Danida 2014a). Potential mitigation effects were intended to arise from:

- Emission minimisation by livestock herd optimization.
- Safeguarding forest ecosystems (soil fertility, water availability, food, spiritual and cultural values) and carbon sequestration (absorption and storage) services by protecting, re-establishing and/or sustainably managing selected forests (i.e. those owned by the government but managed and used by communities), through participatory forest management projects, together with a focus on increased income from alternative economic opportunities and environmentally sustainable practices.
- The total greening (i.e. mainstreaming of mitigation and adaptation considerations) of the agriculture, forestry and other land use (AFOLU) 'sector' and presumed "incremental, long-term" reduction of net tCO_{2e} emissions.

B2. Relevance to partners. For **Ethiopia**, the GATE programme was aligned to Ethiopian policy priorities and sat within the 2011 CRGE Strategy and the five-year national development plan (the Second Growth and Transformation Plan).

For **Denmark**, the GATE programme was designed as means of building its relationship with Ethiopia, prior to the development of a country policy paper and a country programme. Ethiopia was a new priority country for Danish development policy and the GATE programme was perceived as a strategic entry point around sustainable and inclusive green growth (Danida,

2014a).

B3. Relevance to MDGs/SDGs. No project document refers to the SDGs.

However, the objectives set in the GATE Programme document (Danida, 2014a) would imply a contribution to:

SDG 1 No Poverty, through its focus on raising rural incomes

SDG 13 Climate Action, primarily through adaptation actions

B4. Relevance to NDC mitigation commitments. The GATE thematic programme mostly pre-dated the NDC, but in principle was aligned with NDC sectoral priorities 1 (Agriculture) and 2 (Forestry). Ethiopia's NDC records 87% of emissions in 2010 came from agriculture and forestry; and 83% of abatement potential to 2030 could come from these two sectors (GoE, 2017).

B5. Relevance to mitigation. Mitigation verification criteria met:

Mitigation ecology (ME)

Capacity Building (CB)

Part C: Narrative overview

This was a highly ambitious programme of support provided to two very young national institutions within the government administration. Danish support helped to strengthen both at a critical time in their development. This support was also fully aligned with government systems, in accordance with aid effectiveness principles. However, reliance on national reporting systems was a risk, which appears to have been more explicitly addressed with the CRGE Facility (leading to the provision of quarterly progress reports throughout 2016 and 2017). It is not clear why ATA reporting through its Annual Report was considered sufficient for Danish funds, other than wishing to minimise additional donor-specific reporting. Danish support was provided in two sectors of importance for mitigation at a critical time, thus assisting the national climate mitigation strategy.

Part D: Design quality

D1. Theory of change. Denmark's support to these two institutions aimed to enhance their capabilities in the agricultural and forestry sectors. The theory of change is that their effectiveness would increase rapidly, thereby increasingly decoupling GDP growth from GHG emissions. This might be indicated by reduced emissions per unit GDP increment (or some

similar trajectory involving other meaningful proxies for equitable wealth creation and per-unit net emission reduction).

D2. Assumptions underlying the theory of change. Assumption 1. It is possible to decouple GDP growth from GHG emission growth in an African LDC, without harm to global equity (i.e. without infringing on the country's right to development).

Assumption 2. The measures proposed for the farming and forestry sectors, *viz.* 'optimising' livestock herds, safeguarding forest ecosystems, and mainstreaming 'green' considerations (i.e. functional awareness of adaptation, mitigation, biodiversity and ecosystem services) into sector practices at all levels, would be given enough priority and effective support to yield contributions to net GHG emission reductions.

D3. Plausibility of assumptions and links. Community-based adaptation. The empowerment of local communities through mobilisation and organisation, improved resource tenure and environmental education, all leading to participatory sustainable development planning and ultimately to external support in the form of training, small grants, policy change, networking, etc. represents a proven strategy to stabilise a settled landscape ecologically and socially (i.e. to reduce deforestation, biodiversity loss, soil and water degradation), and to make it stronger in the face of climate change (i.e. it is a key strategy in adaptation).

Mitigation co-benefits. Such an outcome will also stabilise and then reduce net GHG emissions from livestock, soil and vegetation. Therefore, it possesses potential significance for mitigation, but as a co-benefit of adaptation. The challenge comes from the plurality of agendas and potentially conflicting priorities, a lack of focus and the chronic tendency to compromise objectives.

Green growth. This raises issues of economics, ecology and sustainability. It is a conceptual compromise (akin to and perhaps synonymous with 'sustainable development'), whereby national governments are committed to economic growth for political reasons (i.e. so that life can be presented as getting more or less steadily better for their constituents) while minimising harm (where this can be done cheaply) to a range of systems (water, biodiversity, climate, gender equity, indigenous peoples, etc.). It would be clearer if Denmark's support was directed to designing and implementing the transitional framework, and correcting errors (e.g. methane emissions, ecosystem damage, species endangerment) that might otherwise be made along the way.

Claiming mitigation aims. A community-based adaptation project can only be claimed to be a *practical action* for mitigation to the extent that mitigation co-benefits are clear, measurable, and

measured against a baseline. Otherwise, at best, it would be contributing to the enabling framework, and even this would require evidence that it was designed explicitly for this purpose.

D4. General quality of the project design. The appraisal team's report raised concerns over the originally proposed programme theory of change and a lack of clarity of the term 'greening', e.g. "The linkages between the outputs and outcome and how they contribute to the GATE objective is not described, nor are the underlying assumptions" (Danida, 2014b) The GATE results chain documented in the Thematic Programme Document comprises reasonable propositions, but address mitigation in an implicit rather than an explicit manner. However, the two chosen sectors were strategic choices that fitted well into the national climate mitigation strategy. **Overall design quality score: 4.**

Part E: Evidence for mitigation performance

E1. Direct effectiveness. ATA introduced vermiculture/composting to farmers through Mekele University for the purpose of organic soil fertility maintenance, reducing acidity in the soil and improving production. Farmers visited reported excellent results, and 100 farmers in the same area have signed up to get worms and start vermicomposting (Bekele et al., 2017)

E2. Indirect effectiveness. "The specific Inception phase deliverables, focused around the process of mainstreaming climate smart agriculture and gender and youth, have advanced slightly below expectations. That said, the ATA engagement has proved to be extremely well-timed; with visible early impacts on the greening of ATA operations and on the greening of the second national Growth and Transformation Plan (GTP II) to which ATA contributed significantly, e.g. by contributing to the inclusion of green indicators in the overall GTP II performance framework. Such progress would have been unlikely without Danish support." (Danida, 2016b, p. iv).

"The ambitious vision is to double agricultural production in ten years with zero additional GHG emissions. An increased focus on production and productivity, commercialisation and manufacturing may compromise environmental aspects and divert public sector investments away from Climate Smart Agriculture. The importance of ATA's greening and change agent role is consequently more outspoken than ever, including addressing an urgent need for improving the understanding of and building capacity to mainstreaming Climate Smart Agriculture across sectors; directed specifically towards leaders in relevant ministries, departments, and regions. A continued GATE engagement with ATA is thus highly relevant and much needed." (Danida, 2016b, p. iv)

"The Review Team (RT) finds that a number of the 'green' or mitigation technologies being tested and applied could be challenged. The mitigation efforts in the watershed development projects under Outcome 1 are for example related to assumptions of reduced GHG emissions through mechanised traction (handheld tractors as opposed to animal traction, i.e. ultimately assuming that traction oxen would be slaughtered). Other hardware being supplied under the investment proposal is mechanised threshing equipment under the assumption that relative emissions will be reduced through increased productivity (less post-harvest losses). While the RT does not question the reduced relative emission to be gained from reduced post-harvest losses, diesel powered equipment may not be the most efficient technology to achieve that. The total cost of supplied hardware is about 10% of the investment proposal. The appropriate technology issue is also related more overall to potential concerns over environmental sustainability of practises and technologies promoted. For example, the Household Irrigation activities of the ATA engagement, where low technology and labour-intensive shallow wells (20-25 meters) are being promoted, are likely to build resilience and reduce relative emissions through increased land productivity. However, it may be at the cost of water resources sustainability unless complemented with water harvesting and conservation activities. Another example is the conservation agriculture initiative, where emissions will be reduced but often this implies an increased use of pesticides. As a consequence, the RT suggests that ATA takes on responsibility to undertake a 'sanity check' of the underlying emission assumptions and appropriateness of the various technologies being promoted within the context of both GATE engagements. Reduced emissions must never be at the cost of environmental sustainability." (Danida, 2016b, p. 12).

E3. Net GHG emission reductions The September CRGE Facility's 2018 report records that for outcome 2.1 (the agricultural project) 0.025 Mt CO₂e had been sequestered (compared to the initial indicator goal of 0.087 Mt CO₂e, i.e. 29% of target).

In relation to the forestry project, there is no quantitative evidence of GHG emission reductions, due to: 1) absence of a baseline for monitoring and evaluating impacts of the intervention, and 2) lack of technical knowledge and expertise on MRV of carbon stocks. Mitigation outcomes were implicitly reported in terms of area of forest protected and rehabilitated as a result of the program. Evidence on carbon stock measurements was lacking. The CRGE Facility considers this as a strategic gap, which could have been filled through the Danish support. According to the CRGE Facility, the Danish support for climate change adaptation was relatively better in meeting the program objective compared to the support for mitigation.

E4. Impact effects. The program is very well aligned to the NDC in addition to the national

mitigation targets and SDGs. The CRGE Facility ensures that all the projects it implements, including the GATE program, lead to a balanced outcome of the triple objectives of mitigation, adaptation and development. This has never been a problem at program design stage, but the challenge is in the implementation of the programs, particularly to achieving the mitigation objectives. Technical and technological limitations related to estimating mitigation are the major gaps to realizing the NDC and CRGE objectives.

E5. Sustainability effects. No information

E6. Efficiency issues. Differences in capacity between the two project partners was evident, ATA having stronger internal systems for project management than the CRGE Facility. The latter also had less than smooth communication with the RDE, which caused delays in project implementation and affected the efficiency of project management. There were two reasons for this: (a) On the CRGE Facility side, there were problems in providing timely reports of adequate quality on activities and finances to the embassy. (b) On the embassy side, the problems were related to the frequent reshuffling of focal persons, delays in responding to communications, and delayed approval of reports. Partnership management problems with Danida are also mentioned by the CRGE Facility as an impediment to project management.

E7. Capacity building issues. The CRGE Facility's November 2017 report acknowledges "There was a great challenge in reporting on the indicator of reduced carbon emissions. The main reason being the absence of baseline data and lack of basic knowledge on MRV of carbon stock in the existing biosphere reserve. To address the challenge, there is a plan to undertake the baseline assessment which requires an additional five months and to improve the skill gap on MRV, training will be organized in Bonga in the third week of December 2017." (MEFC, 2017). However, the planned training was not organized and delivered due to lack of a budget earmarked for this task. According to the CRGE Facility, the skills gap on MRV was not only confined to Bonga but also existed at the EFCCC.

E8. Baseline and monitoring arrangements. The 2015 Inception report for ATA questioned the GHG emission assumptions for several mitigation technologies being tested and applied and suggested that the ATA carry out a check on these underlying assumptions and hence the appropriateness of the various technologies being promoted. The report suggested that a new output "on GHG emissions" be added to the ATA results framework: "Output 1.3: Agricultural livelihoods with low GHG emissions and/or linked to carbon sequestration are promoted among smallholder farmers (Danida, 2016b).

The October 2016 Financial Monitoring Visit Report stated that the ATA had developed a GHG

measurement framework (MFA, 2016). This is confirmed in the published ATA Annual Report for 2016: "A GHG emission accounting framework has been developed for the agricultural sector and is ready for implementation (ATA, 2016). A subsequent consultancy report provided a comprehensive assessment of the existing situation and recommended a GHG accounting framework for the agricultural sector. The accounting tool recommended was the FAO developed Ex-ACT tool and tier 1 data from the IPCC (Echnoserve Consulting PLC, 2016).

The tool was then validated through a validation workshop carried out with relevant stakeholders. Piloting of the tool was also carried out in 30 of the 70 target woredas selected for the assessment. According to the Ministry of Agriculture, the tool developed by the project was relatively user-friendly to undertake detailed and specific GHG emissions accounting in the sector. However, wider and continued application of the Ex-ACT tool was suspended, and the Ministry of Agriculture switched to using IPCC software. This was mainly because the Ministry was required by the EFCCC, which is the focal institution to the UNFCCC, to report GHG inventories from the sector following the 2006 IPCC guidelines for national GHG inventories. The Ministry of Agriculture found the Ex-ACT tool incompatible with IPCC software. On the other hand, Echnoserve believes that the two tools are the same in their basic platforms and hence Ex-Act should not be totally abandoned.

According to Echnoserve, Ex-ACT enables GHG inventory of specific investments and actions in the sector unlike the procedure in the IPCC software. Development of such a tool was expected to support the Ministry of Agriculture with local and investment specific data on GHG inventories that would support mitigation actions in the sector. Echnoserve believes there are no compatibility problems between the software, but the preference of either tools depends on what information needs to be generated. Development of the Ex-ACT tool was driven by the needs of the Ministry of Agriculture for a robust system to monitor specific CRGE investments. The attempt to engage EFCCC as a key stakeholder during the development of the accounting framework was not successful mainly due to an apparent lack of interest. Hence, the development of the GHG accounting framework appears to have been constrained by a lack of communication between government agencies.

E9. Overall conclusion on mitigation performance. The GATE program delivered unquantified mitigation mainstreaming co-benefits in the agriculture and forestry sectors, which are national priorities for climate mitigation actions. **Score 4.**

Part F: Other aspects of design and performance

F1. Unintended consequences. None noted.

F2. Other performance issues. Although the GATE programme was designed in a programmatic way, there is no evidence of any interaction or lesson learning between the two components, and between the two implementing partners (the ATA and the CRGE Facility). Furthermore, the two implementing partners did not have a platform for the sharing of experiences and lessons learned in relation to project implementation. For instance, the CRGE Facility and EFCCC did not know about the GHG emission accounting framework developed by the ATA. According to the CRGE and EFCCC, the document has not been shared with them, which is an indication of lack of coordination between implementing partners working towards related outcomes.

Annex f: Accelerating Wind Power Generation in Ethiopia

Part A: Basic data

A1. Project number & name. 2016-9613: Accelerating Wind Power Generation in Ethiopia (AWPGE).

A2. Interviews. See Annex a, persons and institutions consulted relevant to Annex f.

A3. Dates & financial data. Dates: 2017-2021 (with 1 Jan to 30 June 30 2021 extension). Financial Data: (a) Component 1: DKK 11.5 million plus 5 million total DKK 16.5 million; (b) Component 2.1 DKK 7.75 million; (c) Component 2.2 DKK 4.975 million; (d) Long Term Adviser: DKK 4.25 million; (e) Contingencies: DKK 1.525 million. Grand total: DKK 35 million (DKK 28 million from MFA's share of the CE; DKK 7 million from MCEU's share of the CE (Ref: MFA *Appropriation note 2016*)).

A4. Location(s). Ethiopia, Addis Ababa, Debre Birhan, Adama, Ayisha

A5. Partners. (a) MoWIE: implementation and energy planning; (b) EEP: system optimisation and integration of wind energy; (c) ESMAP: implementation of Engagement 1; (d) DEA: implementation of Engagement 2 and training provider; (e) Energinet: training provider; and (f) embassy: partner.

Part B: Purpose and relevance

B1. Purpose. Overall objective: To strengthen the institutional capacity of the GoE energy sector to accelerate wind power generation. Immediate objective (Engagement 1): To ensure availability of high-quality wind resource assessments for the preparation of bankable wind

energy IPP auctions. Immediate objectives (Engagement 2): 2.1: Improved GoE institutional framework, and market readiness, including the approval of a credible IPP wind auction roadmap. 2.2: Improved system integration of wind power. [2.3: Reduced grid loss, and improved quality of service at distribution level. This objective was removed at the beginning of the programme and therefore has no activities reported.]

B2. Relevance to partners.

Ethiopia: “ensuring rapid, sustainable and broad-based growth” and spurring enhanced productivity within agriculture and manufacturing. Ambitious energy and renewable energy targets underpin the plan, including a significant expansion of wind power's share of overall generation capacity (i.e. to 1,224 MW by 2020).

Denmark: To assist partner countries such as Ethiopia to “decouple carbon emissions from economic growth through cost-efficient mitigation actions in line with Denmark's expressed ambition under the 2016 Paris Agreement (UNFCCC).

B3. Relevance to MDGs/SDGs. SDG 7. SDG 13. SDG 17.

B4. Relevance to NDC mitigation commitments. The AWPGE is aligned with NDC sectoral priority 3 - RE generation (and therefore also with the NDC's strategic goal). In line with its 2011 Climate Resilient Green Economy (CRGE) Strategy, Ethiopia's 2017 NDC stated the intention to limit its GHG emissions to 145 Mt CO₂e in 2030 (a 64% reduction against BAU), and also to reduce the vulnerability of its population, environment and economy to the adverse effects of climate change. The CRGE Strategy is integrated with the Second Growth and Transformation Plan (the national development plan). In the long term,

Ethiopia intends to achieve its vision of becoming carbon-neutral, with the mid-term goal of attaining middle-income status by 2025.

B5. Relevance to mitigation. Mitigation verification criteria met: Mitigation technology (MT); Capacity building (CB).

Part C: Narrative overview

Demand for electricity in Ethiopia is low but growing strongly and the plan is to achieve full coverage by the national grid by 2030. Ethiopia has excellent RE resources, and it is a high priority of the GoE to expand generation capacity and diversify it away from reliance on hydroelectricity, which is currently dominant. Planned capacity expansion includes *ca* 5,200 MW each for wind power and solar. There is enough demand domestically (including at industrial parks throughout the county) and internationally (trade agreements are in place with Sudan which has a massive electricity shortfall, and Kenya) to take whatever power can be produced. The sale of surplus electricity is an attractive prospect for Ethiopia, and at the domestic level all electrification that can reduce the unsustainable use of biomass resources is also important. But the expansion of electricity production requires massive investments and use of private capital and IPPs is seen as part of the solution, which requires market liberalisation. To support it, AWPGE is partly pitched at the operational level, to help the EEP system operators manage a system optimisation where resources are used when cheaply available and where curtailment is minimised. Otherwise, the AWPGE is designed with two Engagements. **Engagement 1**, operated by ESMAP, would erect ten wind masts around the country to measure wind speed (two were moved due to civil disturbance). Systematic wind measurements were to be accompanied by training a cadre of GoE technical staff to manage the data stream, and publication of a wind atlas. **Engagement 2**, managed by DEA, would involve: (a) establishing an IPP framework; (b) optimising integration of wind energy into the grid; and (c) posting a long-term adviser (LTA) to MoWIE to advise on policy and strategy, and to coordinate the programme.

Part D: Design quality

D1. Theory of change. Better availability of accurate measurements for wind (Engagement 1) will attract private sector investors to explore and establish wind farms. In parallel, component 2.1 would build the capacity of the GoE to prepare long term energy plans that includes large scale wind farms (and not only hydro-energy) and component 2.2 would support EEP to optimise integration of wind energy into the grid. Wind fluctuates much more than hydro-

power and requires, therefore, careful optimisation to avoid overload on the energy systems and at the same time minimise curtailment. Hand-over capacity would also be built for tendering the first large win farm as an IPP selling electricity to EEP.

D2. Assumptions underlying the theory of change. A logical set of assumptions could be: (1) that availability of a wind atlas will facilitate planning for and investments in wind-farms; and (2) that the GoE will want to tender a wind farm to an IPP according to the AWPGE timeline. [Two further assumptions (that EEP would prioritise reduction of electricity losses through optimised power production balancing, and that EEP has the mandate to implement new methods to manage the power system) became redundant when Objective 2.3 ('Reduced grid loss, and improved quality of service at distribution level') was removed from the programme.]

D3. Plausibility of assumptions and links. **Assumption 1** is plausible, since all else being equal a wind atlas is a basic starting point for wind RE investments. **Assumption 2** is questionable because experience across Africa has shown long delays between discussions and decisions about energy privatisation and this actually happening. Other assumptions became immaterial with the removal of Objective 2.3.

D4. General quality of the project design.

Engagement 1: the ESMAP design is comprehensive, with a clear theory of change, risk assessment and links with broader engagements in the sector; the design includes clear management structures and proven reporting lines. **Score:** 6.

Engagement 2: this covers the DEA partnership with Ethiopia and the design is based on experience from parallel engagements in middle-income countries such as China, Vietnam, South Africa and Mexico. The design did not specify the role of the LTA to be posted at MoWIE under Component 3, but a job description was drafted by RDE after the MTR and comments were sought from MoWIE, with a view to the appointment being made in the next phase. An inception phase would have been helpful to undertake assessments of capacity and needs, to agree reporting lines and an M&E framework with appropriate indicators, and to build a shared understanding of roles, rights, responsibilities and timelines between the partners. Its absence may help explain the unrealistic timeframes and constant delays experienced. In particular, the extended delays in activities related to site selection and IPP tendering suggest that the Ethiopian partners' preferred timeline may have differed from that of the signed Programme Document. **Score:** 3.

Part E: Evidence for mitigation performance

E1. Direct effectiveness. None

E2. Indirect effectiveness. None due to lack of efforts to estimate impact of interventions.

E3. Net GHG emission reductions None recorded.

E4. Impact effects. From experience elsewhere, completion of the wind atlas is likely to promote interest in wind farms. Engagements 1 & 2 should facilitate the establishment of wind farms. Yet the programme is relatively silent on the range of other barriers to change that exist, which include: financial clarity on GoE guarantees for wind-farm establishment; political stability in the rural areas (e.g. the moving of some wind masts due to civil unrest); availability of local skilled labour; and bureaucratic procedures. **Score:** 3.

E5. Sustainability effects. The Programme includes activities with near-permanent outputs (e.g. wind masts and publication of wind measurements) and others that can lead to irreversible behaviour change (e.g. system optimisation is hard to undo if completed).

Partner satisfaction. (see Tana, 2020: 17). The respective governments seem well satisfied with the strategic collaboration and mutual trust that have arisen as a positive side-effect of the Programme. However, the project has no indicators applicable to the political partnership and therefore no measure for this aspect of sustainability.

Engagement 1. All wind masts have been erected and the wind measurements are loaded on a public information platform. However, there is no plan or budget in place for maintenance, which undermines the sustainability. Component 1 is viewed to be sustainable. **Score:** 5.

Engagement 2. The planned activities have been partly implemented. **Score:** 2.

E6. Efficiency issues.

Engagement 1 was delayed but achieved its aims. **Score:** 6.

Engagement 2 was delayed and had achieved only some of its aims (i.e. the IPP framework was not in place, no additional wind had been integrated, but curtailment from other wind sources had been reduced and a 'road-map' for IPP wind has been developed based on lessons from a solar IPP tendering). **Score:** 3.

The MTR found that expenditure has not been in line with the schedule. Implementation was delayed and there has been some corresponding budget rollover and in addition the original budget has been subject to substantial content changes that are not clearly recorded in any

minutes from Management Group of Steering Committee meetings. Progress was not being tracked and targets and agreements had been moved without accurate recording. The MTR also found that the displayed reporting suggests insufficient planning and programme management capacity including lack of reporting on deliverables by the LTA. After the MTR, a consultant was hired to draft a M&E framework for all Danish interventions in the Energy, GATE and natural resource management projects and a new team structure was constituted at the embassy with a team leader to follow up the implementation. The MTR resulted in major improvements to managerial systems.

E7. Capacity building issues. There were no institutional capacity assessments, gap analyses, individual skills assessments, or ways to monitor changes in capacity and skills.

E8. Baseline and monitoring arrangements. The Programme Document includes performance targets for each engagement and component, but no baselines or targets for GHG emission reductions:

- **Engagement 1:** 2016: wind measurements for three sites in place; 2019: two-years high-quality and validated wind resource measurement report.
- **Engagement 2:** (a) 2016 No IPP framework for wind power in place; 2017 IPP framework in place and validated; 2018 IPP tenders; 2019 International standard power purchase agreement concluded for 100 MW wind. (b) 2016 324 MW wind power integrated in the mix; 2019 at least 424 MW wind power integrated.

The programme did not initially establish a systematic M&E system to track these indicators, but a systematic monitoring system was later established.

E9. Overall conclusion on mitigation performance.

Engagement 1. Comprehensive and accessible wind measurements are needed to open a wind market, so the development of a wind atlas should facilitate investment in wind farms, although clarity on future ownership and maintenance remains limited. **Score:** 5.

Engagement 2. Reports suggest that training under component 2.2 was beneficial and the LTA appreciated, but details are scarce. The establishment of an IPP was crucial but was not delivered. Contributing factors may include unrealistic timeframe and inputs, and limited understanding of absorption capacity. The engagement seems not to have used experiences from similar programmes in other countries to evaluate capacity risks. While the objective was well aligned with the goals of both governments, design and inputs were insufficient and possibly mis-aligned with intended results. A current re-design for AWPGE Phase II should

correct these weaknesses in the context of a positive and continuing partnership. **Score:** 2.

Part F: Other aspects of design and performance

F1. Unintended consequences. None identified

F2. Other performance issues.

Cross-cutting themes. The programme does not link explicitly with job-creation efforts of

Annex g: The Climate Resilient Forests Livelihoods Programme

Part A: Basic data

A1. Project number & name. 2018-21742 Climate Resilient Forests Livelihoods Programme (CRFL)

A2. Interviews. See Annex a, persons and institutions consulted relevant to Annex g.

A3. Dates & financial data. Duration: Dec 2018 – Dec 2023. Resources: Grant of DKK 45 million awarded on 19 December 2018, funded through the Danish Climate Envelope. GoE in-kind contribution estimated at DKK 0.8 million, or ca 2% of total budget (Danida, 2018a).

A4. Location(s). Nine districts (woredas) in in the Southern Nations, Nationalities and Peoples Region (SNNPR) that are part of the Kafa Biosphere Reserve, an area of 760,100 ha. The project aims to support 42 existing and 18 newly established Participatory Forest Management (PFM) groups covering 48,196 ha of forest, hence 6.3% of the Biosphere Reserve (GoE, 2020).

A5. Partners. Danish MFA and Ethiopian Ministry of Finance (MoF). Within the MoF, the Climate Resilient Green Economy Facility (CRGE Facility) which is Ethiopia's national climate fund. Implementing partners: Environment, Forest and Climate Change Commission (EFCCC); SNNPR regional government; Zonal EFCCC.

Part B: Purpose and relevance

B1. Purpose. The development cooperation objective is “improved and climate resilient livelihoods, while increasing forest carbon stocks, and reducing carbon emissions from deforestation” (Danida, 2018b, c)

B2. Relevance to partners.

the GoE or with gender targets. The issue of jobs was discussed with IFU in reviewing the Assela Wind Farm Project (AWFP) and there seem to be options to coordinate training under AWPGE with the need for certified labour in the AWFP.

For **Ethiopia**, CRFL is an initiative that sits within the CRGE Strategy and the national development plan (the Second Growth and Transformation Plan). Both national documents highlight the importance of investments in forestry due to the positive impact of forestry on various sectors of the economy (MEFCC, 2018).

For **Denmark**, CRFL was developed as the third thematic programme of the Danish Country Programme for Ethiopia, 2018-2022 (Danida, 2018b). It directly follows a project under the GATE programme, which was funded through the Climate Envelope in 2015-2018.

B3. Relevance to MDGs/SDGs. The Ethiopia Country Programme document identifies CRFL as contributing to **SDG 13 ‘Climate Action’** (Danida, 2018b). However, through the promotion of participatory forest management, the programme also contributes to **SDG 15 (‘Life on Land’)**, by the protection of natural forest cover in an internationally recognised biodiversity hotspot. Through the use of its criteria to select livelihood beneficiaries to ensure support for the poorest and most excluded members of the engaged communities, including women and youth (MEFCC, 2018), CRFL will contribute indirectly to **SDG 1 (‘No Poverty’)** and **SDG 5 (‘Gender Equality’)**

B4. Relevance to NDC mitigation commitments. The CRFL project is aligned with NDC sectoral priority 2 - Forestry. Ethiopia's 2017 NDC identified that forestry activities could contribute approximately half of the country's GHG emissions abatement potential by 2030, estimated at 130 MtCO_{2e} (GoE, 2017). CRFL is also aligned to the NDC commitments through enhanced participatory forest management activities.

B5. Relevance to mitigation. Mitigation verification criteria met: Mitigation ecology (ME); Capacity Building (CB).

Part C: Narrative overview

CRFL is one of four thematic programmes that make up Denmark's Country Programme for Ethiopia, 2018-2022. It responds to the GoE's commitment to forest conservation as a strategic plank of its national climate change strategy. It continues earlier Danish support in the Kafa Biosphere Reserve in the SNNPR region and aims to reduce pressure on forest resources by diversifying livelihood sources and strengthening participatory forest management (PFM). The national model of PFM has been adopted, together with support for rural livelihood diversification. Capacity development for the SNNPR Regional Government is expected to lead to improved service delivery for rural communities. The programme experienced significant delays.

Part D: Design quality

D1. Theory of change. The design of programme states that "PFM can be considered as a forest-based poverty alleviation strategy through securing user rights to community groups where individual households have their share of responsibilities and benefits." (MEFCC, 2018: 10). Planned interventions build on experience gained in a previous Danish-supported project (104.Etiopien.805.ADD) in terms of PFM and livelihood activities. However, the one indicator that the previous project made no progress on was in estimating carbon emissions as there was no baseline information. Even so, the programme document recognises that carbon sequestration and other benefits (e.g. biodiversity, water catchment and improved livelihoods), will materialise over time as the degraded forests regenerate and are gradually rehabilitated (Danida, 2018b), and this is in line with the programme purpose. From that starting point, therefore, the design is based on the proposition that support for local communities (in terms of PFM and diversified livelihoods) will lead to their improved well-being that would then reduce deforestation pressure, with forest cover continuing to sequester carbon and limit carbon emissions from deforestation (Danida, 2018b, c).

D2. Assumptions underlying the theory of change.

Assumption 1: that enabling communities to take greater charge of managing local ecosystems (through PFM) will encourage them to take an interest in sustainability in their own long-term interest.

Assumption 2: that providing livelihood opportunities will improve well-being.

Assumption 3: that improved well-being will lead to reduced pressure on forests.

Assumption 4: that there will be continuing government commitment to the CRGE Strategy and willingness of central and regional government to transfer legal responsibility for forest

management to communities.

D3. Plausibility of assumptions and links. Assumptions 1, 2 and 4 are plausible. Assumption 3 is only plausible where: (a) livelihoods depend on the sustainable management and protection of the forest (e.g. careful harvesting of renewable natural resources, increased benefits from forest products, ecotourism, payments for environmental services); (b) livelihood benefits are seen to be conditional in some way on conservation, and this is understood as an opportunity rather than a constraint; (c) the extent to which 'improved well-being' means greater disposable income and therefore increased capacity to clear new land is off-set by educated reasons and peer pressure to adhere to the 'conservation settlement'.

D4. General quality of the project design.

The design of CRFL is influenced by the previous Danish-supported project in Kafa Biosphere Reserve and follows international practice by transferring forest rights to local communities through PFM, combined with promoting local livelihood opportunities. PFM has been adopted by the Government of Ethiopia as its main forest conservation strategy. Whether this strategy will result in improved forest cover (and therefore enhanced carbon sequestration) is known to depend on multiple factors. A strength of the programme design is the provision of a social inclusion adviser within EFCCC to strengthen its capacity to address and integrate social concerns in forest management and PFM. Over the medium to long-term, climate change may lead to changes in forest structure and composition. The absence of scientific study to build baseline information means that the design is not fully evidence based. However, a consultancy was sought to complete this task in Sep 2019 but was delayed and the report was due by the end of Nov 2020. According to CRGE Facility and EFCCC, the project design responded to the gaps identified in the previous GATE project. A focus on livelihood improvement was considered as a sustainable path to forest protection and rehabilitation (and thus to carbon stock enhancement). Community consultation was carried out during project design to address the gaps learned from the earlier project (for example, mushroom production was imposed without community consultation and did not contribute to project outcomes). CRFL is coordinated with projects working towards similar outcomes, mainly the Norwegian supported REDD+ project. However, according to the CRGE Facility, some of the indicators (e.g. output indicator 3.2.2) of the Results Framework have not yet been defined and refined, making it open for interpretation and difficult for implementation. **Overall design quality score: 4.**

Part E: Evidence for mitigation performance

E1. Direct effectiveness. Too early to demonstrate direct effectiveness.

E2. Indirect effectiveness.

Continuity between CRFL and a just-completed earlier phase of Danish support in the Kafa Biosphere Reserve (the partner project document specifically refers to it as a Phase II proposal - MEFCC, 2018), suggests that efforts and focus are sufficiently prolonged to make it likely that the aims of both projects will be achieved. These aims include improving livelihoods and resilience of communities and households in the Kafa Biosphere Reserve through supporting sustainable forest enterprises and forest conservation, thereby contributing to the reduction of carbon emissions and increasing carbon sequestration. From international experience, and elsewhere in Ethiopia, the plausibility of such an impact over the short-term is high, but the long-term effect is unknown.

The claim that carbon stocks will be enhanced is based on an outcome indicator of a larger area of forest coming under sustainable management (with a planned increase over the 4-year programme of 9,750 ha [i.e. 1% of the Biosphere Reserve]). The plausibility that this will result in enhanced carbon stock of the forest over a large area is less strong. A baseline study was commissioned in 2020 and it is nearing completion, but the CRGE Facility and EFCCC have expressed concern that it will not contain a baseline on carbon stocks. While the CRFL Results Framework indicated 'enhancing carbon stocks and other ecosystem services and products' as its thematic objective, the relevant outcome indicator is a proxy ('ha of forests under sustainable management'). A claim that CRFL considered the gaps related to monitoring mitigation outcomes in the first phase project therefore remains without clear evidence. Inconsistencies in linking project objectives with impact indicators might have led to the omission of an outcome indicator on carbon stocks.

E3. Net GHG emission reductions None estimated.

E4. Impact effects. No information.

E5. Sustainability effects. The country programme documents lists three plausible reasons for

Annex h: The Assela Wind Farm Project (AWFP)

Part A: Basic data

A1. Project number & name. 2018-14197 DBF Ethiopia Assela Wind Farm Project (AWFP).

expecting sustainability of results: (a) programme actions will be implemented within the framework of existing institutions; (b) they include activities that enhance the capacities of local government entities and communities as well as regional and federal entities; and (c) they will facilitate the establishment of community-based institutions for PFM.

E6. Efficiency issues. The progress report for Jan-May 2020 notes extended budget delays affected the commitment and motivation of project staff (GoE, 2020).

E7. Capacity building issues. No evidence.

E8. Baseline and monitoring arrangements. None.

E9. Overall conclusion on mitigation performance. Score (design only): 4.

Part F: Other aspects of design and performance

F1. Unintended consequences. No evidence.

F2. Other performance issues. Danida (2020) noted that the CRFL inception phase was delayed and stated that "successful implementation of the CRFL programme will require that the GoE implementing partners take ownership in terms of addressing and solving issues that may hamper the implementation without involving RDE". It also highlighted the need for the proposed baseline study to be statistically and scientifically robust for "a meaningful replication to assess changes and contributions by the CRFL programme".

A2. Interviews. See Annex a, persons and institutions consulted relevant to Annex h.

A3. Dates & financial data. Original dates: 2019-2023. Revised dates: 2020 (signing); 2021-

2023 (construction); 2023 (commissioning); 2025 (hand-over EPC contract to EEP); 2023-2027 (assistance period). **Financing:** DKK 1,264.7 million (IFU web-site); DKK 727.3 million (MFA approval board 2018).

A4. Location(s). Ethiopia, Assela.

A5. Partners. (a) EEP: Owner and operator after hand-over; (b) Siemens Gamesa Renewable Energy: wind farm construction; (c) COWI supervising engineer; (d) IFU: Financial partner.

Part B: Purpose and relevance

B1. Purpose. (See MFA: 2018:9). **Objective:** Contribute to increasing the electricity generation capacity based on cost-effective and diversified renewable energy sources, which will help Ethiopia achieve the goal of universal access to electricity and becoming a lower middle-income country by 2025 based on carbon-neutral growth. **Outcome 1:** A 100 MW wind farm at Assela is delivering annually on average 330 GWh of electricity to the national grid, thus avoiding the release of 0.176 MtCO₂ annually. **Outcome 2:** The GoE maintains wind energy as a priority in the country's future energy matrix

B2. Relevance to partners.

Ethiopia: The GoE goal to become a middle-income country by 2025 is based on carbon-neutral growth. Developing RE generation is central to this but requires avoiding excessive dependence on hydropower during recurrent national droughts.

Denmark: in line with *The World 2030*: “Denmark will invest in inclusive and sustainable growth in the developing countries with a special focus on energy, water, agriculture, food and other areas, where Denmark has particular knowledge, resources and interests”. Climate change and sustainable energy are prioritised areas: “Together, the Climate Change Agreement from Paris and the Sustainable Development Goals shape the course for increased investments in resource-effective and sustainable energy and water solutions where Denmark has strong competencies”

B3. Relevance to MDGs/SDGs. **SDG 7** (access to energy equivalent of an estimated 500.000 households); **SDG 8** (supporting economic growth and decent job creation during construction and operation of the wind mill farm as well as indirect job creation); **SDG 9** (quality, reliable, sustainable and resilient infrastructure); **SDG 13** (strengthening climate change mitigation and resilience); and **SDG 17** (mobilising private finance and transferring of environmentally sound technologies).

B4. Relevance to NDC mitigation commitments. The AWWP is aligned with NDC sectoral

priority 3 - RE generation (and therefore also with the NDC's strategic goal).

B5. Relevance to mitigation. Mitigation verification criteria met: Mitigation technology (MT): Large scale wind farming; Capacity building (CB): training large numbers of unskilled/semi-skilled labour as part of construction phase and maintenance.

Part C: Narrative overview

The Ethiopian electricity sector is currently based almost entirely on hydropower and hence vulnerable to drought and climate change. Introducing wind energy will diversify the energy mix and increase energy security. Despite rapid change globally in the RE investment sector, which has made wind and solar more profitable than fossil fuel systems in many places, the decision to subsidise AWWP was made in view of low power tariffs (which were predicted to deter investment otherwise) and the need to accelerate RE development (which was predicted to happen too slowly otherwise to divert future energy supply from high-carbon to low-carbon modes). Thus, the AWWP uses Danida Sustainable Infrastructure Finance (DSIF) funding through a concessional finance model consisting of a grant (from IF) and a loan module (from Danske Bank), guaranteed by Denmark and underwritten by an export credit guarantee from the Danish Export Credit Fund to EEP. This will be used to build a 100 MW wind farm, able to deliver an average of 330 GWh a year to the national grid. The facility will be built about 150 km south of Addis Ababa by Siemens Gamesa, commissioned and after a two-year liability phase handed over to the EEP for operation and maintenance.

Part D: Design quality

D1. Theory of change. Expanded availability and predictability of power generation will help Ethiopians access modern electricity and support industrialisation of the country. Access to modern electricity will reduce lung and eye diseases, reduce unsustainable harvest of fuelwood and increase opportunities of local industrial activities.

D2. Assumptions underlying the theory of change.

Assumption 1: the wind farm will produce electricity as planned.

Assumption 2: the EEP will reduce curtailment of dammed hydro energy and instead use wind energy as flexible energy source.

Assumption 3: the electricity produced will also be available to the nearby villages and industrial parks.

D3. Plausibility of assumptions and links.

Assumption 1: very likely – the start date may be delayed but there is little doubt that Siemens Gamesa can build a wind farm to the agreed standard and agreed outputs.

Assumption 2: curtailment is a big issue and current Danish energy programme and French interventions provide TA to stop the current waste of power. It is likely that the curtailment will be substantially reduced by 2023 (commissioning) as new technology will be in place at EEP to monitor flow automatically.

Assumption 3: among the conditions for the soft finance is that electricity shall also be provided to those affected by-living near by the wind farm and also for industrial activities.

D4. General quality of the project design. The Project is well described and documented including assessment of future GHG emission reductions, a well-established theory of change and a good description of the commercial implementation plan. **Score:** 6.

Part E: Evidence for mitigation performance

E1. Direct effectiveness. See E3.

E2. Indirect effectiveness. The project will contribute to reducing GHG emissions by allowing wind-based electricity to replace the use of fuel-wood, candles or kerosene at household level, and diesel and coal at SME level.

E3. Net GHG emission reductions. Estimated to avoid the release of 175,890 tonnes of CO₂ (0.176 MtCO₂) annually at full operation.

E4. Impact effects. None noted, but construction over several years will have local environmental impacts, and operation over many years will have an economic impact locally and nationally.

E5. Sustainability effects. The high level of subsidy by Denmark appears to guarantee maintenance over an extended period, but ability to pay for power by consumers is a concern. There is political understanding that tariffs need to be raised and this process has begun (according to IFU) but raising public energy tariffs can lead to civil unrest and political resistance, so the process may not be smooth. The attempt is considered necessary, however, as part of a general liberalisation of the energy market in Ethiopia, and the World Bank is supporting initiatives to test procurement of power from IPPs using solar PV, a process that is essential to pave the way for use of IPP contracts for wind farms going forward. The AWFPP is

therefore being launched into a rather uncertain set of circumstances, but with Danish and GoE (MoF) guarantees, EEP management, increasing demand for power domestically and high demand internationally, the project itself ought to be sustainable.

E6. Efficiency issues. The AWFPP is slightly late but all contracts, including the MoF loan guarantee, are now in place. Detailed design and geological studies are expected to begin in 2021, subject to CoViD restrictions.

E7. Capacity building issues. Certification of staff training during construction (to allow for transferability to other employment) was not planned but is being considered by IFU and embassy.

E8. Baseline and monitoring arrangements. Standard reporting on performance will be overseen by Supervising Engineer. Electricity produced can be monitored against a baseline of zero in 2018/19, rising to 330 GWh in 2023/24.

E9. Overall conclusion on mitigation performance. The AWFPP will predictably cut net GHG emissions significantly over time while contributing to the low-carbon transformation of Ethiopia's energy system. Questions inevitably arise over its cost-effectiveness as a publicly-financed mitigation strategy, since alternative models exist both for strategy and for investment, and over the political and social pathway to transformation. Co-benefits include temporary jobs in the construction phase, which could be enhanced through labour certification, and more permanent employment in electrified enterprises locally and nationally.

Part F: Other aspects of design and performance

F1. Unintended consequences. The development of a large wind farm and electricity distribution node with supply locally will have many local effects. Addressing the fact that some land will be lost to farming, a budget is available for compensation and re-schooling to minimise the need for households to move because they can no longer live off their land.

F2. Other performance issues.

Replicability. It is reasonable to expect that additional wind farms will be established at Assela as investors take advantage of infrastructure, connectivity, proven markets and increased tariffs. The number of locations where public subsidy is needed to induce RE investment at speed and scale is declining rapidly worldwide, including in rural Africa, so replication of the AWFPP investment model may be increasingly unnecessary, allowing public mitigation investments to be re-focused on other areas.

Cross-cutting themes. The certification of trained labour would help maximise the socio-economic co-benefits of RE projects, including AWWP.

Annex i: Ethiopia-Denmark Strategic Energy Sector Cooperation

Part A: Basic data

A1. Project number & name. 2020-7551: Ethiopia-Denmark Strategic Energy Sector Cooperation (SESC).

A2. Interviews. See Annex a, persons and institutions consulted relevant to Annex i.

A3. Dates & financial data. Dates: Jan 2020 - Jan 2023. Financing: DKK 10 million (SSC).

A4. Location(s). Ethiopia, Addis Ababa.

A5. Partners. DEA with MoWIE, EEP and the Energy Development Commission.

Part B: Purpose and relevance

B1. Purpose. The SESC will support development of Ethiopia's capacity to undertake long-term modelling and energy planning, thus building GoE 'choice awareness' over its energy objectives and regulatory processes in the energy sector. The aim is to contribute to reaching the supply security and electrification goals of the Growth and Transformation Plan II, the Climate Resilient Green Economy Strategy, the Electricity Sector Specific Master Plan, and the Ethiopian National Electrification Strategy (MFA, 2019b: 6).

B2. Relevance to partners.

Ethiopia: The SESC will support Ethiopia in becoming a lower middle-income country by 2025 while increasing access to energy from 44% to 100% (65% on-grid and 35% off-grid).

Denmark: The SESC is in line with Denmark's international support and obligations to support LDCs' endeavours for economic growth while reducing overall GHG emissions.

B3. Relevance to MDGs/SDGs. SDG 7: Affordable and Clean Energy. SDG 13: Climate Action. SDG 17: Partnerships.

B4. Relevance to NDC mitigation commitments. The SESC is aligned with the NDC

strategic goal via NDC strategic priorities 1 (CRGE implementation), 2 (low-carbon development) and 3 (international support), as well as NDC sectoral priority 3 (RE generation).

B5. Relevance to mitigation. Mitigation verification criteria met: Capacity building (CB).

Part C: Narrative overview

Ethiopia faces development challenges that include insufficient electricity supply and distribution. Only about a third of the total population has access to electricity and the proportion is as low as 8% in rural areas, where 80% of the population live. Only about a quarter of primary schools and 30% of health clinics have electricity access. There is demand both domestically (e.g. industrial parks throughout the country) and internationally (e.g. with agreements in place with Sudan, Djibouti, and Kenya) to absorb all power produced, and despite limited supply and scarce cash to purchase electricity, its use has seen sustained high annual growth rates. The chief alternative is to burn biomass, which undermines efforts to reduce GHG emissions and conserve biodiversity, and in domestic contexts also has negative health impacts primarily for women and children. Electricity production is mainly by large hydroelectric plants that are vulnerable to drought and climate change (in 2019, there were several months of continuous load shedding and outages due to drought). They also consume scarce fertile (river-bottom) land when dammed, and the 'Grand Ethiopian Renaissance Dam' on the Nile, which will be the largest such facility in Africa, is also a potential source of conflict with Egypt. The Danish and Ethiopian governments have agreed on a long-term collaboration to increase the share of other RE sources in the energy mix, in order to reduce risks, increase supply and potential affordability, and improve system efficiency. This collaboration began in 2017 with the AWPGE programme. In this context, SESC is focused on building capacity to optimise energy supply through long-term planning and modelling.

Part D: Design quality

D1. Theory of change. Energy plans based on realistic models and properly applied can improve the availability of electricity where and when it is needed. In order to support the GoE

in the ambitious targets of 100% electricity access and economic growth, the GoE must be able to perform long-term energy planning based on least-cost development of the energy system to support important policy and regulatory framework development.

D2. Assumptions underlying the theory of change.

Assumption 1: that there will be continuing engagement from partner organisations.

Assumption 2: that capacity and personnel in partner organisations can be maintained.

Assumption 3: that data will be available and shared.

D3. Plausibility of assumptions and links.

Assumption 1: plausible because: (a) an interest to engage in collaboration has been clearly expressed by the minister; and (b) the aims of collaboration are embedded in multiple sustained policy priorities of the GoE.

Assumption 2: plausible because of experience from previous engagements, and because the programme is part of GoE's targets and plans.

Assumption 3: plausible because of the high level of trust which seems to exist between the partners, having been built over several years' of collaboration.

D4. General quality of the project design. The design is based on experience working with partner organisations in Ethiopia as well as Danish experience from other countries. The logic of interventions is well rooted in the priorities of the GoE plans. The assumptions are largely plausible but the design could have been improved by a more explicit inclusion of universities, technical universities, and the emerging private sector to facilitate building the capacity of a broader base of stakeholders with the relevant knowledge and informed skills to help drive the upcoming industry and to help GoE secure skilled staff. **Score:** 5.

Part E: Evidence for mitigation performance

E1. Direct effectiveness. None, as this is a capacity-building intervention.

E2. Indirect effectiveness. Expansion of electricity generation through diverse RE sources will alleviate uptake of diesel-generated electricity and reduce use of fossil and biomass fuels. Improved energy planning will promote these effects and contribute to NDC emission-reduction goals.

E3. Net GHG emission reductions: None estimated.

E4. Impact effects. Strategic improvement in capacity for energy sector modelling and planning would be expected to have a cumulative impact over time.

E5. Sustainability effects. Strategic improvement in capacity for energy sector modelling and planning would be expected to have irreversible effects over time.

E6. Efficiency issues. The project document lacks specificity on managerial systems and there is no manual on procedures; this is being developed as part of the inception work (but was not available to the evaluation). An M&E system is being developed (although not ready for sharing); a job-description for a programme manager is being developed.

E7. Capacity building issues. The project document lacks an institutional capacity assessment, individual skills assessments, a capacity gap analysis or capacity goals, and nor does it include staff development plans. All these tasks are part of the inception work during the first half of 2020, however, for which results were not available to the evaluation. The capacity building online training modules have started. **Score:** 5 (tentative).

E8. Baseline and monitoring arrangements. No baselines or monitoring arrangements were prepared as part of the preparatory work, as this is not a requirement in the SSC template. A baseline of available data is scheduled to be prepared during the first quarter of 2020 but due to the CoViD pandemic this target is moved to 2021. No institutional capacity baseline is scheduled to be prepared for any of the three partner institutions.

E9. Overall conclusion on mitigation performance. SESC design is clearly influenced by lessons from earlier engagements. The inception work from Jan 2020 is reported to show promise for effective management and achievement of results, but the evaluation preceded delivery of outputs.

Part F: Other aspects of design and performance

F1. Unintended consequences. None identified.

F2. Other performance issues. None noted.

Acronyms and abbreviations (Ethiopia)

AA-EPA	Addis Ababa City Environmental Protection Authority.	IPP	Independent Power Producer.
ATA	Agricultural Transformation Agency.	LDC	Least Developed Country.
AWFP	Assela Wind Farm Project.	MCEU	Ministry for Climate, Energy and Utilities of Denmark.
AWPGE	Accelerating Wind Power Generation in Ethiopia.	MEFCC	Ministry of Environment, Forestry and Climate Change.
BAU	Business as usual.	MFA	Ministry of Foreign Affairs of Denmark.
CE	Climate Envelope.	MFEC	Ministry of Finance and Economic Cooperation.
CRFL	Climate Resilient Forest Livelihoods [programme].	MoA	Ministry of Agriculture.
CRGE	Climate Resilient Green Economy.	MoF	Ministry of Finance
DBF	Danish Business Finance.	MoT	Ministry of Transport.
DEA	Danish Energy Agency.	MoWIE	Ministry of Water, Irrigation and Energy.
DEEP	Danish Ethiopia Energy Partnership.	NEP	National Electrification Programme
DFID	Department for International Development (of the UK, now the Foreign, Commonwealth and Development Office).	PFM	Participatory Forest Management.
DSIF	Danida Sustainable Infrastructure Finance	RDE	Royal Danish Embassy (Addis Ababa, Ethiopia).
EEP	Ethiopian Electric Power.	SCIP	Strategic Climate Institutions Programme.
EFCCC	Environment, Forest, and Climate Change Commission.	SESC	Ethiopia-Denmark Strategic Energy Sector Cooperation.
GATE	Greening Agricultural Transformation in Ethiopia.	SNNPR	Southern Nations, Nationalities, and Peoples' Region.
GoE	Government of Ethiopia.	UN	United Nations.
IFU	Investment Fund for Developing Countries	UNDP	United Nations Development Programme.
		VERA	Vehicle Emissions Reduction in Addis [Ababa].

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