NDC HIGHLIGHTS

Volume 1, No. 3, November 2020

NDC Highlights is a bimonthly newsletter of the Environment, Forest and Climate Change Commission, focusing on disseminating information and knowledge on the implementation of Ethiopia's NDC.

"Nature-based solution is our first line of defense against devastating impacts of climate change"

H.E Professor Fekadu Beyene, Commissioner, EFCCC

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NEWS

EFCCC hosted a virtual roundtable discussion on Nature-Based Solutions for Climate Change Adaptation

On the 3rd of December 2020, the Environment, Forest and Climate Change Commission (EFCCC) hosted an online roundtable event, "Ethiopia's Nature-Based Solution for Climate Adaptation." The roundtable was organized jointly with the Global Commission on Adaptation as a pre-event in the lead up to the 2021 Climate Adaptation Summit. The overarching objective was to showcase Ethiopia's leadership in Nature-based Solutions (NbS) initiatives. The successes, challenges, lessons learned, and opportunities in NbS for adaptation were presented to the global audience.

During the event, presentations and discussions focused on Ethiopia's NbS interventions including restoring and greening degraded landscapes, sustainably managing land, water, and forest resources, and financing. H.E. Professor Fekadu Beyene, EFCCC's commissioner, delivered an opening remark and stressed on the necessity to harness NbS to mitigate and better adapt and build resilience capacity. The Commissioner also stated the unwavering commitment of his country to continue working closely with all stakeholders to address the adverse impacts of climate change through NbS. He called upon all developed countries and development agencies to support, both financially and technically, the ongoing NbS interventions in Ethiopia.

Ethiopia Sees Promise in Sustainable and Climate-Friendly Cooling

Many widely used cooling technologies for air-conditioning and refrigeration mainly use human-made fluorinated gases (F-gases). While they were invented to substitute other gases that harm the ozone layer, these gases are almost 10,000 times more potent than carbon dioxide in causing global warming. Total greenhouse gas emissions from the cooling sector are expected to account for around 13% at the global level by 2030 which is comparable to emissions from road transport today.

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Agriculture Sector's Contributions for the Success of Ethiopia's NDC

- Berhanu Assefa, Director, Environment Climate Change Coordination Directorate, MoA

According to Ministry of Agriculture's (MoA) GTP II achievement report, the agriculture sector contributed 34.6% to the national economy (GDP), and accounted 79% of all employment and export commodities in 2020. However, due to its reliance on rain-fed techniques, agriculture in Ethiopia is highly vulnerable to impacts of weather variability and climate change such as temperature rise, frequent droughts, and flooding. Different studies show that those dependent upon agriculture-based livelihoods are highly vulnerable, and that future climate change poses an even greater threat. The agriculture and forestry climate resilience (CR) strategy indicates that increased incidences of droughts could result in a 10% reduction of GDP, or more, by 2050.

Therefore, developing a climate resilient agriculture system is crucial and hence the Government of Ethiopia has taken the vulnerability of the sector and food insecurity as a development priority. Towards this, the Climate Resilience Strategy of Agriculture and Forestry was developed in 2015 as part of the Climate Resilient Green Economy (CRGE) Strategy to increase adaptation and mitigation capacity of the sector in a changing climate. Interventions that can reduce this vulnerability have been identified resulting in considerable effort invested to reduce the vulnerability in the agriculture sector. However, more needs to be done to ensure the resilience of our economy and people, including mobilizing the required finance.

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NEWS

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In Ethiopia, access to any type of cooling technology for residential or commercial purposes has been limited in the past. Cooling for preserving agricultural products is very important. These sectors are crucial for the Ethiopian economy and development and growth potential. A new generation of sustainable cooling technologies that has emerged more recently could allow Ethiopia to leapfrog directly to energy efficient and climate-friendly cooling. It is also worth noting that cold chains have important medical applications such as the transport of temperature-sensitive vaccines, including for COVID-19. Moreover, bypassing traditional cooling technologies can support Ethiopia in expanding its regional leadership on ambitious climate policy.

In the lead up to the joint climate change summit of the UN Secretary General's and COP Presidency's (UK) event, on the 12th of December 2021, the COP26 Champions team organized an event 'Championing Product Efficiency in support of enhanced NDCs and net-zero', hosted by the UK government on December 10th. The event provides a high-profile platform for countries to communicate their efforts on product efficiency, including cooling efficiency. of Paris.

H.E Professor Fekadu Beyene, Commissioner of the Environment, Forest and Climate Change Commission of Ethiopia (EFCCC) was one of the high-level panelists at the event. As part of this event, the Kigali Cooling Efficiency Program (K-CEP) has announced a new technical assistance programme to support Ethiopia in improving access to these sustainable cooling technologies, which have significant benefits for economic productivity and food security. This funding will be provided through K-CEP's NDC Support Facility for Efficient, Climate-Friendly Cooling, which will focus on the integration of cooling efficiency in NDC updates in developing countries over the next 2 to 3 years. The Ethiopian project on improving access to sustainable cold chains for agricultural products will provide technical assistance over the next 2.5 years to the Environment, Forest and Climate Change Commission and the Ethiopian Energy Authority.

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Response to Climate Change Impacts

Identified options to build climate resilience and reduce vulnerability

The agriculture sector is divided into two sub-sectors based on its GHG emission, soil-based and livestock.

Detailed analysis of the CRGE strategy shows that GHG emissions from agriculture sector would rise from 75 $MtCO_2e$ in 2010 to 185 $MtCO_2e$ in 2030 under a conventional development path ('business as usual'). The CRGE strategy and the Nationally Determined Contribution (NDC) have prioritized the following 7 initiatives in agriculture sector to limit soil-based and livestock emissions from the agriculture sector.

Prioritized soil-based initiatives:

- Intensify agriculture through usage of improved inputs and better residue management;
- Create new agricultural land in lowland areas through irrigation to limit expansion of the cultivated area; and
- Introduce lower-emission agricultural techniques.

Prioritized livestock sector initiatives:

- Increase animal value chain efficiency to improve productivity;
- Support consumption of lower-emitting sources of protein;
- Mechanize draft power; and
- Manage rangeland to increase its carbon content and improve the productivity of the land.

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Efforts made and achievements so far

Based on the aforementioned CRGE strategy and NDC prioritization to build resilience against the risks from current weather variability and future climate change, the sector's CR strategy has identified and prioritized about 41 low-carbon development initiatives. Together these initiatives would enable the sector to achieve its development goals while reducing 90 $MtCO_2e$ GHG emissions by 2030.

To address the prioritized targets in soil-based and livestock sub sector, in the past 5 years, significant efforts and major public investments have been made to boost the contribution of the agriculture sector in a changing climate. These include:

- 1.2 million quintals of improved seeds and 1.6 million tonnes of fertilizer were used to increase the productivity of major crops from 270 million quintals in 2013/2014 to 335 million quintals in 2019/2020.
- 24 million hectares of degraded watersheds were treated with sustainable land management techniques and GHG emissions have been reduced by 7.23 $MtCO_2e$ and 17.55 $MtCO_2e$ due to application of climate smart crops and natural resource management interventions, respectively.
- In 2019/2020, in the livestock sub sector, milk, meat, egg and feed production increased by 3%, 9%, 63% and 14%, respectively when compare with 2013/2014. Further, GHG emission was reduced by 12.06 $MtCO_2e$.
- In total, during GTP II (2015-2020), 36.84 $MtCO_2e$ GHG emission was reduced by the agriculture sector.

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Figure 1. Soil and Water Conservation, Nemera Micro Watershed, Kondala Woreda, Oromia

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The Agriculture sector's 10 years perspective plan

In the context of climate change hazards, greater natural capital protection is needed in water, land, soil, and other ecosystems management. Explicit attention is given to climate smart crop, livestock, natural resource management and ecosystem services in the 10 years perspective plan.

The sector's 10 years perspective plan was developed by identifying actions prioritized by the CRGE/NDC and CR strategies and converting each action to a 2030 target. As shown in table 1 below, for each target, annual GHG emission reductions are identified.

Sector	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	5 year	2025/26	2026/27	2027/28	2028/29	2029/30	10 years
Crop	7.23	3.67	3.67	3.67	3.67	3.67	18.35	2.45	2.45	2.45	2.45	2.45	30.60
NRM	17.55	2.70	2.70	2.70	2.70	2.70	13.5	1.80	1.80	1.80	1.80	1.80	22.5
Livestock	12.06	4.313	4.313	4.313	4.313	4.313	21.565	2.875	2.875	2.875	2.875	2.875	35.94
Total	36.84	10.683	10.683	10.683	10.683	10.683	53.415	7.125	7.125	7.125	7.125	7.125	89.04

Table 1: Agriculture sector annual, 5 year and 10 years GHG reduction targets, in $MtCO_2e$

Key points to be considered in the implementation of the 10-years perspective plan

- Mainstreaming of the prioritized CRGE/NDC interventions in the sector's regular development plan, programmes and projects at all level is crucial for the success of the NDC.
- Combatting the negative impacts of climate change and building resilience requires collective responsibility of all stakeholders at different levels.
- Sectors must assume leadership at the national level while collaborating with international efforts; and to ensure success, the involvement of local communities in the overall process is crucial.
- The private sector has an important role to play in investments to build community resilience. Similarly, development partners can contribute significantly to ensure climate resilience by providing technical assistance, building capacity, and supporting implementation.
- Additional investment required beyond the MoA budget to implement all 41 agricultural options is around $200m today and rising to around $600m in 2030. Therefore, collaborative actions are required to mobilize the required finance.

EVENTS

Globally, in view of the spread and severity of the COVID-19 outbreak, several climate change and environmental sustainability related events, continue to be postponed or cancelled. However, the following are a list of events that will be conducted online. These events are accessible to a broader audience. For further information on each event please click on the 'source' link.

- Data Tools for Assessing New National Climate Commitments, WRI, Dec 2020 | **Source**
- Public Finance and a Green Recovery, WRI, Dec 2020 | **Source**
- Recommendations for Preparing Distributed Energy Resources Roadmaps and Plans, Climate Links, Dec 2020 | **Source**
- Two Degrees Initiative for Food and Agriculture CCAFS, Dec 2020 | **Source**
- Five Years Later: Celebrating the Paris Agreement and Charting the Path Forward, WRI, Dec 2020 | **Source**
- E-Course: Public-Private-Partnerships (PPP) – Improving Performance Irrigation Services Provision (self-Paced), Dec 2020 | **Source**
- E-Course: Policy Instruments for Low Emissions Development: From Design to Implementation (Self-paced), Dec 2020 | **Source**
- Climate Adaptation Summit 2021, Jan 2021 | **Source**
- Next Generation Central Banking: Climate Change, Inequality, Financial Instability, Heinrich Böll Foundation, Feb 2021 | **Source**

Ethiopia's Urban Solid Waste Sector and its Contribution to the NDC

❑ *Girma Gemchu; Director, Solid and Hazardous Waste Compliance Monitoring Directorate, EFCCC*

Ethiopia's Nationally Determined Contribution (NDC) indicates the country's aim to limit its net greenhouse gas (GHG) emissions by 64% from the projected 'business-as usual' emissions by 2030. Ethiopia also aims to undertake adaptation initiatives to reduce the vulnerability of its population, environment and economy to the adverse effects of climate change, based on its Climate Resilient Green Economy Strategy (CRGE) and National Adaptation Plan, which were launched in 2011 and 2017, respectively. One of the four pillars of the CRGE and the NDC is leapfrogging to modern and energy efficient technologies in transport, industry, and building.

Cities are major contributors to greenhouse gas emissions; 80% of global GDP in 2018 was produced in cities. Cities also consume as much as 80 percent of energy production worldwide. Urban design and management as well as sustainable methods of transportation are therefore crucial to GHG emission reductions. It is not urbanization alone that increases emissions. It is rather about the sprawl and movement about the city and how people use energy and manage their waste that makes the difference in how cities pollute and contribute to climate change.

In Ethiopia, there is a strong correlation between GHG emissions and municipal solid waste (MSW). Rapid urbanization, coupled with population growth, has led to an increase of MSW generation by 24% per year. Furthermore, only an average of 50% of generated waste is collected, 95% of which is buried in uncontrolled dumpsites. The remaining 50% is ungoverned and discarded, usually ending up in open fire.

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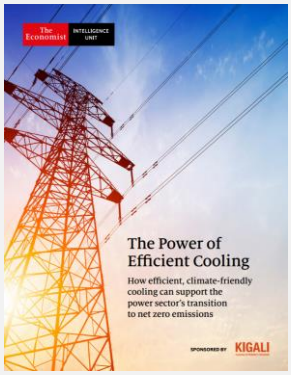
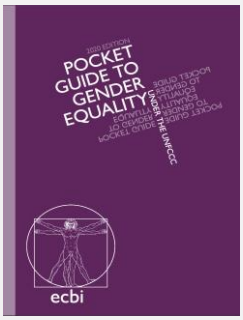
PUBLICATIONS

The Power of Efficient Cooling



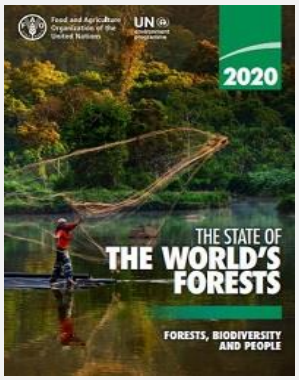
According to a new report by the Economist Intelligence Unit, implementing more efficient cooling solutions could save $3.5 trillion in power generation costs over the next ten years, and drive an emissions reduction of 7.6 gigatons of carbon dioxide (GtCO2). **Source**

Pocket Guide to Gender Equality under the UNFCCC



ECBI has released an updated quick guide on Gender Equality under the UNFCC. It includes 2019 Enhanced Lima Work Programme on Gender and its Gender Action Plan, and updated resources for incorporating gender in climate planning and action. **Source**

State of the World's Forests 2020



The State of the World's Forests reports on the status of forests, recent major policy and institutional developments and key issues concerning the forest sector. **Source**

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Overall, Ethiopia's total emissions of around 150 Mt CO_2e represents less than 0.3% of global emissions. Of the 150 Mt CO_2e in 2010, 87% of GHG emissions came from the agricultural (37%) and forestry (50%) sectors. They are followed by power, transport, industry, and building sectors, which contributed 3% each.

In 2010, the buildings sector contributed around 5 Mt CO_2e of which the main drivers are emissions related to solid and liquid waste (3 Mt of CO_2e) and the use of private off-grid power generators in cities (2 Mt of CO_2e). An increasing urban population is expected to drive increasing waste generation and (off-grid) energy consumption. As a result, the CRGE strategy estimates total buildings-related emissions to increase from 5 Mt CO_2e to 10 Mt CO_2e in 2030, with around 25% of the emissions related to off-grid energy consumption, and 75% to waste.

Taking the GHG emission contribution of the urban sector in general, and solid waste in particular, a series of projects supported by the Global Environment Facility and led by the Government of Ethiopia have been implemented since 2015. The *Creating Opportunities for Municipalities to Produce and Operationalize Solid Waste Transformation* (COMPOST) project, being implemented in six major cities, as well as other city-based waste management projects are examples of initiatives playing a key role in the improvement of waste infrastructure and public mobilization.

To support Ministry of Urban Development and Construction (MUDC) of Ethiopia in implementing the CRGE and NDC, the Environment, Forest and Climate Change Commission (EFCCC) carried out a series of urban solid waste management compliance monitoring in more

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than 721 urban centers including emerging cities that would help achieve Ethiopia's NDC commitments. This article outlines the challenges and recommendations identified by this assessment.

Ethiopia's regulations and commitments on emission reductions in the waste sector

Since the launching of the CRGE in 2011, Ethiopia has built up a strong legal and institution framework for climate change mitigation and adaptation. The two consecutive five-year period national plans, namely the Growth and Transformation Plan I and II (GTP I and GTP II), which were implemented from 2010-2020, have established and strengthened the overall targets and strategies for all relevant industries and ministries. These plans reflect Ethiopia's concern about climate change and its commitment to act. For example, within the urban sector, the GTP II establishes a target to collect 70% of urban household solid waste, of which 30% is to be recycled, reused, and recovered including for energy generation. Further, the 2014 Solid Waste Management Strategy, developed by the MUDC, is instrumental in lowering GHG emission through improved solid waste management strategies.

In 2017 and 2019 the Ethiopian parliament has ratified the Paris Agreement and Kigali Amendment, respectively, as part of the global commitment to combat climate change.

Challenges in achieving NDC targets in the urban waste sector

In the past five years, most local governments have increased their annual solid waste management budget by 10%-15% each year in an effort to reduce GHG emissions and enforce compliance to safe disposal and collection of municipal waste.

However, Ethiopia is facing several challenges in achieving the set targets in the urban solid waste sector. Mitigation options require high investment costs for infrastructure, technologies, and public awareness. The funding needed to implement the mitigation options and achieve the GHG emission reduction targets is estimated at 2.7 Billion USD (estimation taken from 189 urban cities). Challenges to improved and integrated solid waste management broadly include:

- **Waste separation at source**: Due to a lack of awareness, policy guidance on waste separation and infrastructure, there is extremely low separation at source. As a result, most collection and transport equipment keep all wastes mixed.
- **Collection and transport**: On average there is 50% collection rate (higher in big cities) which needs more investment to meet the target of 100% by 2030. Fees for collection and transport cover only operational costs and are not adequate to upgrade equipment.
- **Waste management:** The waste in Ethiopia is nearly 70% organic in content. Lack of integrated waste management (IWM), which includes source reduction, segregation, recycling and composting, results in a high burden on landfills and the production of massive GHG.
- **Institutional challenges:** Although there are significant number of policies and regulations on solid waste management, Ethiopia does not have a legal system of enforcement in cities and provinces. Further, overlapping responsibilities between national, provincial and city governments and agencies continues to result in coordination challenges.

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Recommendations

Cities contribute 70% of total greenhouse gas emissions globally, therefore, achieving Ethiopia's NDC will only be possible with changes made in how cities are planned and operate. Ensuring clear and effective coordination of NDC activities across ministries, with lessons and knowledge shared between cities and provinces are the prerequisite for effective implementation. Finally, transitioning to a green economy and achieving the NDC will require funding consistent with the challenges cities face – both from government and the private sector. Below are key actions recommended for local actors:

The national government should provide enough technical guidance for mainstreaming NDC activities into provincial and urban plans and ensure flow of data and information from lower administrative levels to the federal level. The guidance would help provinces and cities to understand the best investment options to reduce their GHG emissions and how they should mainstream NDC targets and activities as an integral part of urban waste management plans and programs.

Cities and Urban centers need to review and strengthen their legal framework to implement the NDC. This should aim to provide an improved urban regulatory framework and incentive mechanisms for investment and recommended technologies for waste management.

Each city should develop its own effective institutional arrangement for NDC implementation. Cities are in a good position to pilot new and innovative approaches. Cities can explore the positive synergies that occur when urban activities are collaboratively planned and can use the opportunity to create a more inclusive society. An effective and efficient institutional arrangement would help to ensure the implementation and enforcement of urban green growth development plans, as well as to reach the city's GHG reduction and climate resilience targets.

Mitigation options for urban solid waste management should focus on waste prevention, minimization, reuse, and recycling. Moving towards a circular economy as a nation will have multiple environmental, social, and economic benefits. A significant amount of GHG is emitted due to the improper management of solid waste. Estimation of GHG emissions shows that landfill is the biggest contributor among emission sources of waste management. Studies indicate IWM is the best option to reduce emissions in the waste sector, especially for countries that have high proportion of organic waste. Therefore, implementation of the NDC in the waste sector requires investment in infrastructure and a careful choice between different technological options supported by appropriate policy instruments.

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based on a decision of the German Bundestag

CDKN Climate & Development Knowledge Network | SOUTH SOUTH NORTH TOWARDS CLIMATE RESILIENCE

Funded by

Ministry of Foreign Affairs of the Netherlands

IDRC | CRDI International Development Research Centre Centre de recherches pour le développement international

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This work was carried out with the aid of a grant from the Ministry of Foreign Affairs of the Netherlands and the International Development Research Centre (IDRC), Canada, as part of the Climate and Development Knowledge Network (CDKN) Programme. The views expressed herein do not necessarily represent those of the Ministry of Foreign Affairs of the Netherlands, or of the International Development Research Centre (IDRC) or its Board of Governors, or of the entities managing CDKN.