NDC HIGHLIGHTS

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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.



Stakeholders gathered to validate Ethiopia's updated nationally determined contributions to climate action.

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NEWS

Ethiopia's Updated Nationally Determined Contributions to Climate Action Validated

Ethiopia's updated Nationally Determined Contributions to Climate Action was officially validated and launched on July 1, 2021. The validation took place in the presence of representatives from sector ministries, ambassadors, development partners, regional bureaus, civic society organizations and others who are expected to contribute its implementation. The event was attended both in person and virtually.

The updated NDC is said to encompass ambitious targets to be achieved by 2030. Speaking at the opening of the event, His Excellency prof. Fekadu Beyene, Commissioner to the Environment, Forest and Climate Change Commission, mentioned that the plan intends to reduce GHG emissions by 68.8% by 2030 and incorporates targets that aim to meet 40 Adaptation interventions which were not included in the previous plan (an article providing details of the updated NDC is included in this issue). **Source**

Survey Results: Engaging online during COVID-19

Based on a CDKN survey conducted in 2020 (announced on the first issue of this newsletter), as well as a series of interviews with practitioners in Africa, Asia and South America, a working paper that shares some of the experiences and challenges climate practitioners in the global South have faced in transitioning to working online because of the Covid-19 pandemic is released. The paper shares different perspectives on the extent to which online engagement has been successful and what can be improved. **Source**

Ethiopia's Updated Nationally Determined Contributions

❑ Contribution from EFCCC

NDCs are actions that Parties to the 2015 Paris Agreement plan to undertake to address climate change. Parties decide for themselves the level of ambition reflected in their NDCs, according to their national circumstances and priorities. NDCs are recorded in an NDC registry maintained by the Secretariat of the UN Framework Convention on Climate Change (UNFCCC).

Parties commit to submit updated NDCs every five years demonstrating progression beyond the country's previous one and "reflect its highest possible ambition". Accordingly, as part of the country's commitment to the Paris Agreement (PA), Ethiopia has completed updating its NDC for submission to the UNFCCC in July 2021 with a clear progression in ambition of reducing 68.8% of its emissions by 2030 from the Business as Usual (BAU) scenario.

The Process of Ethiopia's NDC update

The NDC updating process has gone through a series of steps including extensive document review, data collection, model development, and validation, as well as stakeholder consultations. Documents used include IPCC 2006 guidelines, Ethiopia's 10 Years Development Plan (10YDP), Ethiopia's Green Economy Model (GEM), the recently updated livestock inventory, and the most recent IPCC Assessment Reports (AR5).

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Mitigation Component process

Technical analysis of the mitigation component comprises five concisely defined methodological steps:

1. Preparing an updated BAU scenario
2. Preparing updated GHG abatement policy scenarios for 2030
3. Setting 2025 interim and 2030 final NDC targets
4. Prioritizing mitigation interventions and indicator selection and,
5. Determining conditional and unconditional policy action

Adaptation Component process

The adaptation component is based on a review of:

1. National Adaptation Plan (NAP)-ETH
2. The NAP implementation road map
3. NAP resource mobilization strategy
4. The 10YDP and,
5. Various sector-based vulnerability assessments

Actions were then prioritized, and finances estimated and disaggregated into conditional and unconditional components. Gender and institutional capacity gap analyses were then conducted to inform the NDC updating process.

The updated NDC demonstrates clear progress in Ethiopia's ambition for the following reasons:

- Higher robustness of GHG emissions pathways and targets through improvements in methodology by capturing historical emissions and emissions pathways through greater alignment with national GHG inventories, revised emission factors, and improved consistency with the IPCC's 2006 guidelines.
- An emission reduction target of 68.8%, which is more ambitious compared to its first NDC (64%).
- Inclusion of a detailed adaptation indicator, baseline, and 2030 targets. The first NDC did not have a quantified baseline and targets.
- Clear demarcation between unconditional and conditional mitigation and adaptation interventions, with a meaningful domestic contribution, unlike the first NDC.
- Commitment to exploring further ambition increases during the NDC commitment period.
- Better adaptability & flexibility of the methodology to future changes of policies and external shocks.
- An enhanced ability to track progress on mitigation and adaptation actions with improved MRV/M&E.

Resource requirement and conditionality of action

The financial resources required to implement the updated NDC in the next 10 years is estimated as USD 316 billion. The mitigation interventions identified in the updated NDC require USD 275.5 billion and adaptation actions require USD 40.5 billion.

20% of the total reduction will be domestically financed (unconditional) while the remaining 80% shall be financed by international support (conditional). Ethiopia is committed to invest USD 63.2 billion on climate change mitigation and adaption actions from domestic sources, which is equivalent to an average annual investment of USD 6.32 billion by 2030. The conditional finance, which is equivalent to USD 252.8 billion, should be received from international climate finance sources.

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Ethiopia has expressed a strong desire to participate in carbon market opportunities offered through the PA.

Updated business-as-usual, unconditional, and conditional elements

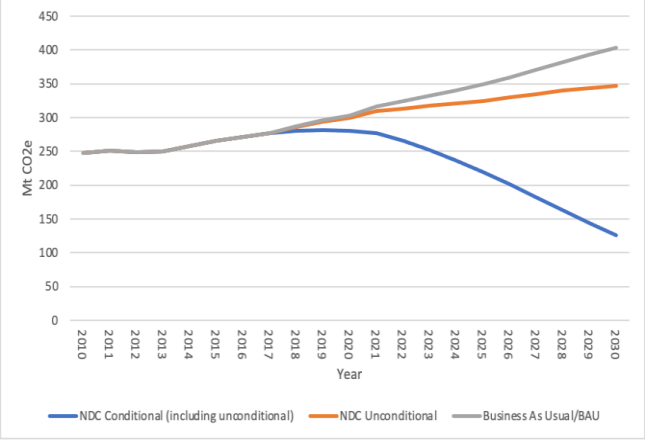


Figure 1 – Ethiopia's BAU, unconditional and conditional emission pathways

The base year and BAU emission projections of the updated NDC differ from the 1st NDC because of differences in the methods of estimation and the updated data used compared to the first NDC.

The updated base year emissions in 2010 are estimated at 247 Mt CO_2e which are projected to increase to a level of approximately 404 Mt CO_2e in the BAU scenario in 2030. The unconditional pathway will result in absolute emission levels of 347.3 Mt CO_2e in 2030, which represents a reduction against the revised BAU of 14% (-56 Mt CO_2e) in 2030. Policy interventions proposed under the conditional pathway decrease absolute emission levels to 125.8 Mt CO_2e such that the combined impact of unconditional and conditional contributions represents a reduction of 68.8% (-277.7 Mt CO_2e) in comparison with the revised BAU emissions in 2030.

Comparative Sector Contributions to Ethiopia's GHG mitigation targets

The figure below compares the GHG contribution of different sectors towards the GHG mitigation targets.

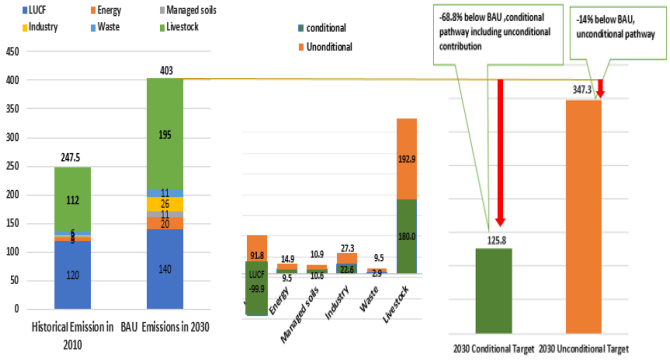


Figure 2: Overview of sectoral contributions to Ethiopia GHG mitigation targets

Contribution of NDC to Climate Change Adaptation

The updated NDC has identified 40 adaptation interventions with a clear demarcation between unconditional and conditional actions. It covers the Agriculture, Forestry, Water, Transport, Urban, Health, Land Use and Natural Resource Management, and Climate Services and Disaster Risk Reduction sectors.

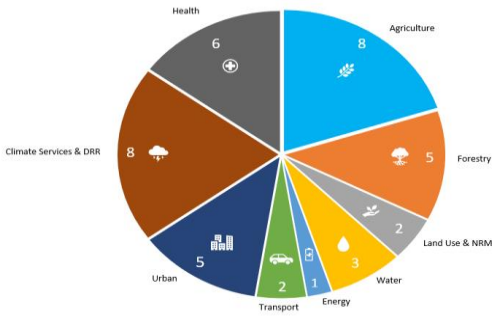


Figure 3: Number of adaptation interventions per sector.

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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 digital. 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.

- Climate Innovation Forum 2021, Climate Action, July 2021 | **Source**
- Using Satellite Imagery to Investigate Deforestation on Global Forest Watch, WRI, July 2021 | **Source**
- the Hubris of Manipulating Nature, Climate One, July 2021 | **Source**
- United Nations Food Systems Pre-Summit 2021, UN, July 2021 | **Source**
- Regional Climate Week (Thematic Session): Africa, Climate links, July 2021 | **Source**
- Understanding mitigation in the climate security nexus, Climate links, August 2021 | **Source**
- Asia-Africa Online Training Programme: Demystifying Water and Waste Data for Communication and Action, Centre for Science and Environment, August 2021 | **Source**
- Cities Transition Summit, Climate Action, September 2021 | **Source**
- Sustainable Innovation Forum 2021, Climate Action, November 2021 | **Source**

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Mechanisms of Verification (MRV) of Implementation
The updated NDC is aligned to Ethiopia's 10YDP (2021-2030) and the 2050 LT-LEDS, both of which are based on the Green Economy Model. Emission reductions and adaptive actions are thus monitored and verified through sector Measurement, Reporting and Verification (MRV) systems upon implementation of each activity in the context of the 10YDP. The following is a high-level framework for M&E of actions.

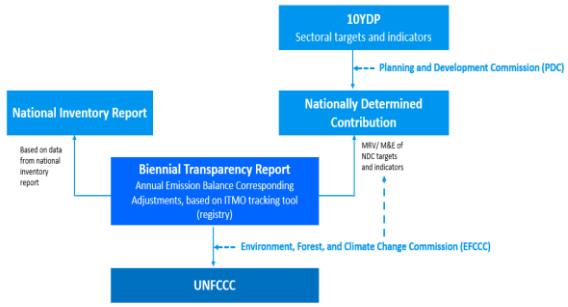


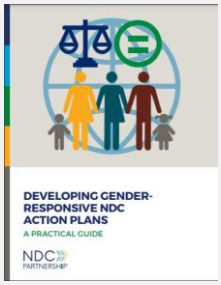
Figure 4: NDC-specific MRV and M&E framework

Capacity-Building and Technology Requirements for Ethiopia's NDC Implementation
In order to fully implement the mitigation and adaptation interventions proposed under the updated NDC, Ethiopia also seeks support on capacity building and technology transfer, among others, in the following areas:

- Strengthen the MRV system and its institutional setup with adequate infrastructure and human resources.
- Put in place a public expenditure review framework across all government institutions at all levels that enable disaggregation of distinct budgetary flows and allocations.
- Integration of MRV/M&E with the general national statistical data management system.
- Enhance accessibility and availability of data through the state-of-the art technology.
- Strengthen the coordination among sectors and regional counterparts to ensure better implementation, monitoring, and evaluation of NDC.
- Catalyze technology transfer including clean cement production, early warning systems, sustainable catchment, and land use management.

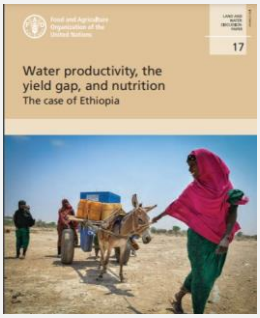
PUBLICATIONS

Developing gender-responsive NDC action plans



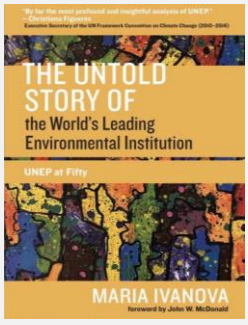
Designed primarily for government representatives, in-country facilitators and advisors, this guide offers five steps to steer efforts towards enhancing gender equality considerations and to exemplify how gender tools and methodologies can be used to develop gender responsive NDC action plans. **Source**

Water productivity, the yield gap, and nutrition – The case of Ethiopia



This report investigates the relationship between water and nutrition using data from Ethiopia on yield, water productivity, and the macro and micronutrient contents of foods. **Source**

The Untold Story of the World's Leading Environmental Institution: UNEP at Fifty



In this book, Maria Ivanova counters the common criticism that UNEP was deficient by design, arguing that UNEP has in fact delivered on much (though not all) of its mandate. UNEP's fiftieth anniversary, Ivanova argues, presents an opportunity for reinvention. **Source**

Ethiopia's MRV System and Implementation Status – part II

Greenhouse Gas emissions inventory for Addis Ababa

- Benti Firdissa Dugassa, Director of National MRV system, EFCCC

The Addis Ababa 2016 Greenhouse Gas (GHG) emissions inventory report was compiled by the Addis Ababa Environment Protection and the Green Development Commission (AAEPGDC), with technical assistance from C40 and Ricardo Energy & Environment in 2020.

The document was prepared as part of C40's Global Climate Action Planning (CAP) programme, which includes Addis Ababa along with eleven other cities in Africa. It summarizes the results of the city's GHG emissions inventory for 2016, which has been completed and confirmed as being compliant with the Global Protocol on Community Scale Greenhouse Gas Emission Inventories (GPC) Standard by C40 Cities and reported using C40's City Inventory Reporting and Information System (CIRIS) Tool.

Overview of Emissions by Sector

It is estimated that Addis Ababa emitted 14.48 million tonnes CO_2e in 2016. The transport sector was found to be the highest emitter, accounting for 78% of the total emissions, followed by the waste sector at 13% and stationary energy sector at 8%. The high emissions in the transport sector were attributed to the presence of older vehicles in the city and the inclusion of the aviation sector (Scope 3) in the analysis, which contributes to 69% of the transport sector's emissions. In the waste sector, open burning and incineration are the main sources of emissions while biomass energy consumption was found to be a major source of emissions in the stationary energy sector.

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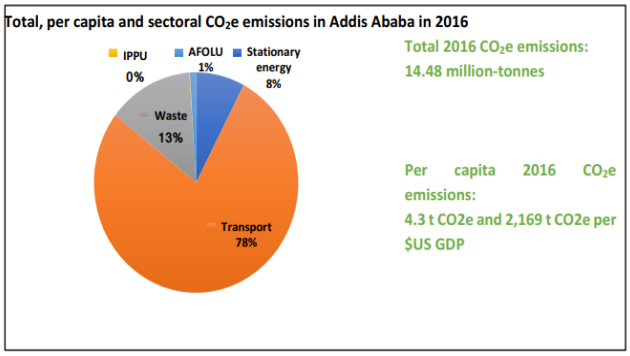


Figure 1: Total per capita and GHG emission contribution of sectors in CO_2e.

Transport sector GHG emission inventory

Road, off-road, rail, water and air are the main means of transporting passengers or freight. The main transport type in Addis Ababa is on-road vehicles. The city also has an electric powered light railway transit system, which covers approximately 34.5 km. Air travel connects Addis Ababa with national and international cities. Off-road transport is used in the manufacturing, construction, and agriculture sectors. The emissions from the transport sector derive directly from combusting fuel or indirectly from consuming grid-delivered electricity.

The transport sector accounts for 78% of Addis Ababa's GHG emissions in the 2016 inventory. On-road transport and aviation accounted for 66% and 34%, respectively, whilst off-road transport and railways contribute a small proportion. Vehicles are the highest emitters at 7,461,886 tCO_2e, primarily from diesel at 58%, followed by petrol emissions at 42%, whereas aviation is the second largest emitting sector, with a total of 3,808,250 tCO_2e from jet gasoline. The methodology and scope definition for the transport sector is as follows:

- **Scope 1** fuels include diesel, petrol, and LPG for on-road vehicles. Emissions were calculated using a top-down fuel sales approach.
- **Scope 2** (grid-supplied energy) electric railway was negligible in Addis Ababa in 2016.
- **Scope 3** include aviation and trans-boundary movement of on-road transport.

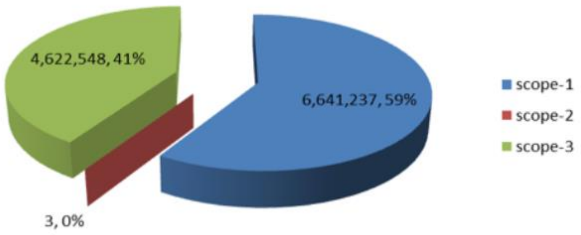


Figure 2: 2016 transport emission by scope definition

On-road Transport

Emissions from on-road transport accounted for 66% of the total 11,263,787 tCO_2e. Emissions from diesel vehicles is 6,504,385 tCO_2e (87%) and gasoline is 951,150 tCO_2e (13%). Among on-road sub sectors, dry cargo (>10 quintals) is the largest contributor to emissions (3,454,950 tCO_2e), followed by trailer vehicles, buses (< 12 seats), and dry cargo (<10 quintals), which accounted for 862,429.2 tCO_2e, 747,041.0 tCO_2e and 712,024.6 tCO_2e, respectively. The lowest emitting source was found to be three-wheel dry loads, which accounted for 23.7 tCO_2e.

Scope 1 GHG emissions included 6.64 $MtCO_2e$ from transportation occurring in the city boundary and Scope 3 GHG emissions included 814,298 tCO_2e from the out-of-city portion of trans-boundary trips that either originate or terminate within the city boundaries. The dry cargo, trailer, bus and automobiles are the highest emitters in order.

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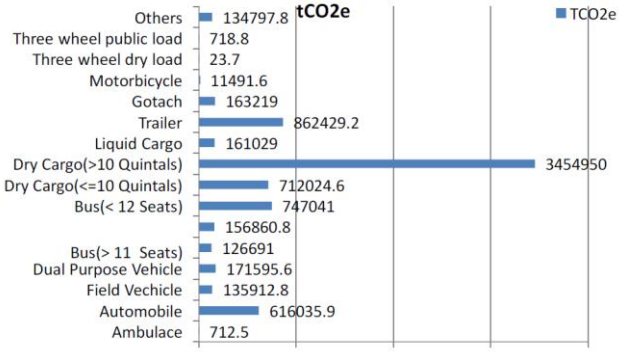


Figure 3: Emission by Vehicle Types

Waste sector GHG emission inventory

The city's Waste Management Agency is responsible for the coordination of municipal solid waste. Waste is collected from households and commercial institutions by associations at the community level. Some areas are served by transfer stations, which enable the segregation and sorting of waste streams. The city has open dumpsites which have been serving the city for more than 50 years. The total municipal waste generated in the city in 2016 was 720,761 tonnes. The waste composition of Addis Ababa is dominated by organic material, which accounts for 64%. The remaining materials include plastics, metals and paper.

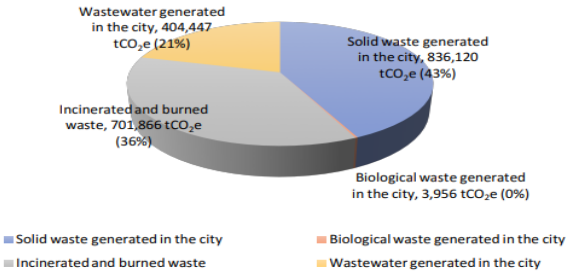


Figure 4: GHG emissions based on type of waste

Other sectors that the inventory included are Industrial Processes and Product Use (IPPU) and Agriculture, Forestry and Other Land Use (AFOLU). Industrial emissions in 2016 (11,434 tCO2e) were found to be slightly higher than in 2012 (10,514.5 tCO2e). The rate of growth of green house gas emission has slowed by 4% and CO_2 per unit of GDP has increased in most cases.

AFOLU activities are divided into three categories: livestock, land, and aggregate and non-CO_2 emissions sources on land. GHGs from AFOLU consist of CH_4, N_2O and CO_2. GHG emissions were calculated based on the methods recommended in the GPC. Since all livestock activities are taking place within the city boundary, all the resulting GHG emissions are considered Scope 1 emissions. Emissions from the AFOLU sector in Addis Ababa totaled 141,329 tCO_2e in 2016.

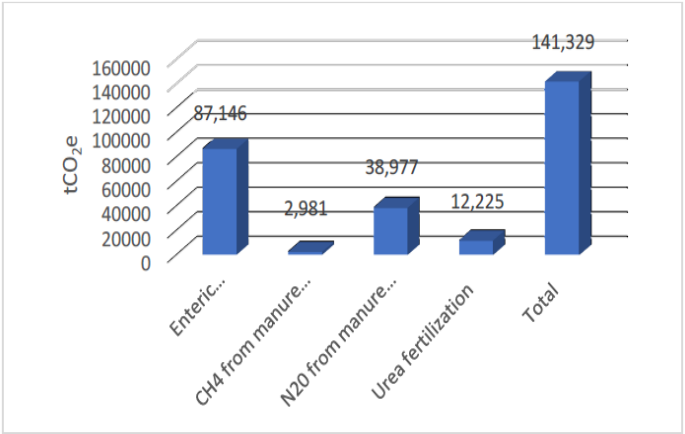


Figure 5: GHG emissions from AFOLU sectors in Addis Ababa

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Comparison with earlier inventory

An analysis of Addis Ababa's GHG emissions in 2016 indicated a 50% increase in emissions compared with the first emissions inventory, prepared in 2012. The growth has been attributed to the rise in emissions from the transport and waste sectors, increasing by 66% and 13%, respectively.

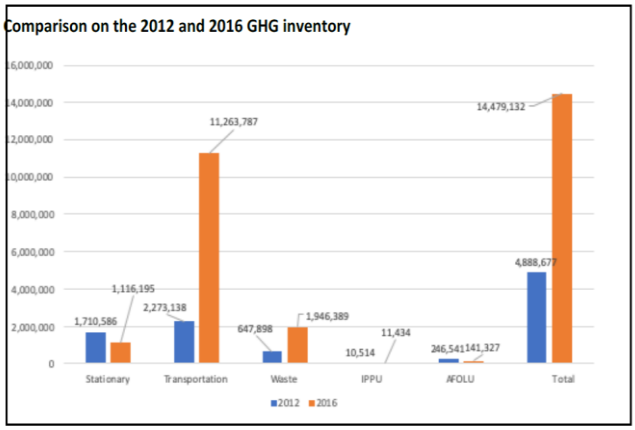


Figure 6: Comparison of GHG inventory emission between 2012 and 2016 in Addis Ababa

Comparison with other cities

Addis Ababa's GHG emissions (BASIC) were compared with estimated emissions for 2016 from a range of mega cities from the world, including Auckland (New Zealand), Cape Town (South Africa), Durban (South Africa), Dakar (Senegal), Guadalajara (Mexico), Athens (Greece) and Austin (USA). Addis was found to have the highest GHG emissions from the transport sector, whilst the waste sector was also amongst the highest. It is critical to note that Addis' per capita emissions are amongst the lowest, while the emissions per 1,000 USD GDP amongst the highest in the region.

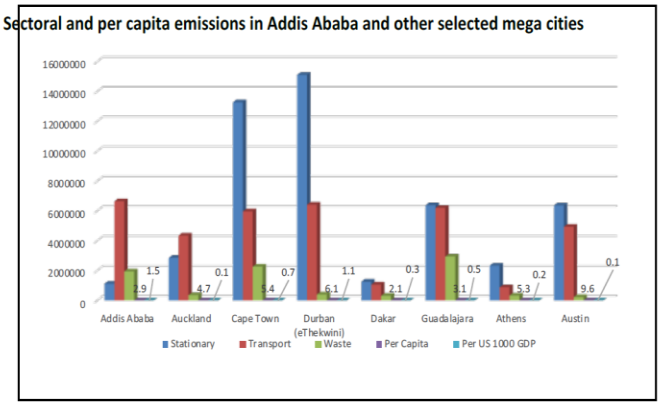


Figure 7: Sectoral and per capital emission in Addis Ababa and other selected mega cities.

Conclusion

The preparation of the GHG emissions inventory is aimed at supporting the city's vision to become a resilient and sustainable city by 2030 which, in turn, contributes to the national Climate Resilience Green Economy Strategy (CRGE) goals and the Paris Agreement. The GPC Standard has been used together with the latest IPCC 2006 guideline for calculating GHG data to take stock of the city's emissions. The emissions inventory report showcases the amount of emissions released into the atmosphere as a result of different activities in the city such as transportation, energy use, and waste. The 2016 GHG inventory will be used to prepare the emission reduction targets for the city in 2030-, 2040- and 2050-time horizons and this will be reflected in the climate action plan. Priority of climate actions and emission reduction targets will be set for the basic level sectors presented in the report and this will be monitored over time, to ensure that the city transitions to a carbon neutral and resilient city that delivers socio-economic and environmental benefits to the city residents.

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