



Urban
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ETHIOPIA

POLICY ENVIRONMENT PAPER

BERLIN, 2018



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Urban Pathways Replication Cities

ABSTRACT

This paper highlights policy measures adopted by the Ethiopian government in delivering on its Intended Nationally Determined Contributions (INDC) communicated to the United Nations Framework Convention on Climate Change (UNFCCC). The paper reviews mitigation and adaptation efforts of the government to reduce greenhouse gas emissions and address climate change impacts in the context of the New Urban Agenda. The paper also presents an overview of the transport, energy and waste sectors and highlights policy strategies and actions implemented by the city of Addis Ababa in the promotion of sustainable and environmentally-sound development.





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COUNTRY OVERVIEW

Ethiopia is located in the Horn of Africa, the peninsula in East Africa, with a total surface area of 1,104,300 sq.km. The country borders Eritrea, Somalia, Kenya, South Sudan, and Sudan (World Bank, 2018a). As at 2016, Ethiopia had a total population of 102,403,196 with a 19.9% share of urban population growing at a rate of 4.7% (World Bank, 2018b). The urban population of Ethiopia has been fluctuating over the past decades, though the larger part of the population remained rural throughout the periods. The most populated cities in Ethiopia include Addis Ababa, the capital city, with a 2010 population of 3,009,130; followed by Dire Dawa, Mekele and Nazret. Other major cities include Bahir Dar, Gondar, Dese, Hawassa, Jima and Bishoftu (Worldatlas, 2018, Atlas of Urban Expansion, 2016). Ethiopia's Gross Domestic

Product (GDP) in 2016 was estimated at 72.374 billion USD, with a growth rate of 7.5% and a GDP per capita of 706.757 USD. The GDP figures of Ethiopia have shown oscillating trends over the years; and as indicated by the World Bank (2018a), this phenomenon constitutes the main challenges of the Ethiopian government in sustaining positive economic growth to accelerate poverty reduction. Ethiopia's CO₂ emissions in 2014 was projected at 11,598.7 ktCO₂ with per capita CO₂ emissions of 0.119 MtCO₂. On the path to growing its economy, Ethiopia continues to make investments into physical infrastructure that will positively impact the lives of its citizens (World Bank, 2018b). The country is guided by the potential effects of infrastructural development on its environment; as such, commits to the agenda on climate change mitigation and adaptation.

SUMMARY OF NDC

In its Intended Nationally Determined Contributions (INDCs) communicated to the United Nations Framework Convention on Climate Change (UNFCCC), Ethiopia commits to reduce greenhouse gas emissions by 64% of the business-as-usual (BAU) scenario by 2030; translating into a reduction of 255MtCO₂e. Ethiopia's INDCs are founded from the country's Climate Resilient Green Economy (CRGE) Strategy, which prescribes strategies and defines objectives to tackle the effects of climate change in Ethiopia. As indicated in the INDC, Ethiopia aims to attain carbon-neutral development in the long term. To be able to achieve these, the following sectors require some interventions in addressing climate change: Agriculture, Forestry, Transport,

Energy, Industry, Buildings including Waste. The country recognizes the importance of both mitigation and adaptation measures; as such has outlined strategies and plans to reduce and adapt to climate change impacts.

The agriculture sector (including livestock farming, crop cultivation and forestry activities) in 2010 is the highest contributor to emissions, amounting to about 88% of total greenhouse gases (GHG) emissions. The sector presents the highest abatement potential for GHG emissions reduction; hence was identified as a priority area that needs to be developed resiliently. The other sectors including Transport, Energy, Industry and Buildings each accounted for 3% of GHG emissions in 2010.

In 2010, the transport sector produced 5 MtCO_{2e} representing 3% of total GHG emissions. Emissions from the transport is projected to reach 70 MtCO_{2e} by 2030 under the business-as-usual scenario. To reduce emissions from the sector, Ethiopia intends to expand its investments in improved transport systems such as rail transport that depends on clean and renewable energy sources; this measure is expected to contribute to a reduction of 10 MtCO_{2e} emissions by 2030 (14% reduction to BAU). In addition, the country is making efforts to remove subsidies on fossil fuels thereby discouraging excessive consumption of fossil fuel in the transport sector. Ethiopia also plans to implement urban planning that prioritises accessibility; hence minimizing emissions from motorized transport.

In the energy sector, the Ethiopian government commits to promoting the use of modern energy sources (such as Liquefied Petroleum Gas and electricity) for cooking; and reducing emissions from electricity generation by cutting down on fossil fuel usage and resorting to more renewable sources such as hydroelectric, geothermal, wind and solar sources.

Though the waste sector was not detailed in Ethiopia's NDCs, the country plans to develop wastewater treatment infrastructure in the medium to long term. The adaptation strategies as outlined by the Ethiopian government, are anchored in the following actions and plans: the 2007 National Adaptation Programme of Action (NAPA), the 2011 Ethiopian Programme of Adaptation to Climate Change, Adaption plans of National Regional States and City Administrations as well as sectoral adaptation plans.

To be able to achieve its INDCs, Ethiopia makes it clear that the involvement and the support from bilateral and multilateral partners, including the private sector, will be key to successfully deliver its commitments. Such support will essentially be through financial investments, capacity building and technology transfer. As Ethiopia aspires to attain a middle-income status by 2025, it acknowledges that the consequences of climate change can hinder in reaching the goal. The country therefore aims to build a climate resilient green economy that brings about local, national and international environmental benefits (Federal Democratic Republic of Ethiopia, 2015).



POLICY AND STAKEHOLDER MAPPING

Political background

Ethiopia is a Federal Democratic Republic. The 1995 constitution of Ethiopia establishes nine States that are demarcated based on settlement patterns, language identity and under consensus of the people in the respective areas (Federal Democratic Republic of Ethiopia, 2018). The constitution therefore establishes the Federal government and the State Authority, both of which have legislative, executive and judicial powers (Federal Democratic Republic of Ethiopia, 1995). The constitution also gives citizens the right to fully partake in local and national development; as such, the lowest units of local government are empowered to allow citizens make direct contribution in the administration of grass-root level units (Federal Democratic Republic of Ethiopia, 2018). For instance, Article 89, Section 6 of the Ethiopian Constitution (1995) stipulates that “Government shall at all times promote the participation of the People in the formulation of national development policies and programmes; it shall also have the duty to support the initiatives of the People in their development endeavours” (Federal Democratic Republic of Ethiopia, 1995, p.33).

At the urban level, there exist city administrations whilst the rural areas are under the jurisdiction of districts known as “woredas”. Both the city and the district administrations are mandat-

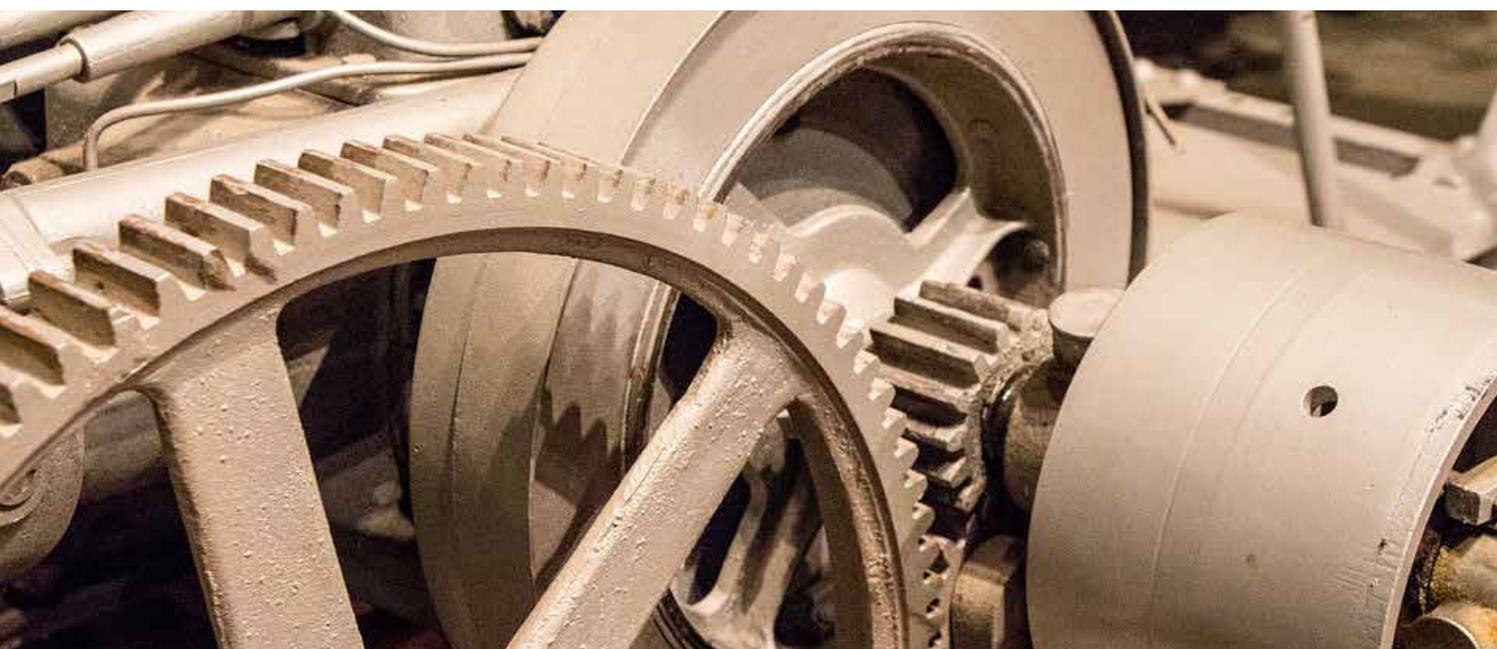
ed by state constitutions to plan and execute socio-economic programmes and projects for the benefit of residents within their respective geographic areas. These local authorities largely depend on grants from regional states for the implementation of developmental activities (Ayele, 2011). At the lowest level of governance structure in Ethiopia are village level authorities called “Kebeles” which oversee development in village communities. The Kebeles are expected to collect income taxes from agricultural land, organize communal labour to support the execution of developmental activities and assist in the resolution of conflicts. The approval of development plans prepared by the woredas is also the responsibility of Kebeles (Bekele and Kjosavik, 2016). A major challenge faced by local authority (Woreda, city and Kebele) administrations in the discharge of socio-economic services, is the inadequate funding for the provision of infrastructure and social services. This situation is explained by the fact that revenue generated by local authorities in Ethiopia constitutes only 19% of total national revenue; whilst the federal government accounts for the greater portion of revenue collected as mandated by the Constitution (The World Bank, 2018c). As such, national grants and transfers to local authorities remain the major source of revenue for local development.



SECTOR OVERVIEW: ENERGY

In Ethiopia, energy supply largely comes from biomass sources, which account for about 91% of total energy consumed. Biomass energy, in the form of firewood and charcoal, is largely used by households in cooking (Mondal, Bryan, et al., 2018). As at 2014, energy consumption from fossil fuel stood at 6.1%, out of which the transport sector consumed 46.8% (World Bank, 2018b). Energy supply for electricity in Ethiopia represents only 2% of the total energy use and is almost entirely dependent on hydro. Evidently this translates into poor electricity access, as about 70% of the Ethiopian population live without electricity (The World Bank, 2018b). Nevertheless, as indicated by The World Bank (2018a), Ethiopia is well endowed with natural renewable energy sources such as hydro, wind, solar and geothermal sources; which can be tapped and developed to spur socio-economic growth. The energy sector in Ethiopia is managed by the Ministry of Water, Irrigation and Electricity, which is responsible for planning, coordinating and

monitoring of energy development initiatives. The Ethiopian Electric Power is responsible for electricity generation and transmission; whilst distribution to consumers is the prerogative of the Ethiopian Electric Utility. The sector is regulated by the Ethiopian Energy Authority that is authorised to issue licenses for electricity generation, transfer, distribution and sales (Climate and Development Knowledge Network, 2017). The development objectives of Ethiopia's energy sector are stipulated in the country's National Energy Policy of 2013. The policy, among other objectives, aims at promoting the exploitation of the country's renewable energy resources with priority for hydro sources (Government of Ethiopia, 2013). Also, the policy encourages private sector participation in the supply of energy to users. The Ethiopian Energy Policy takes account of the possible impacts of energy projects, hence prompts policy makers and implementers to put in measures to safeguard the environment during the execution of energy exploitation activities.



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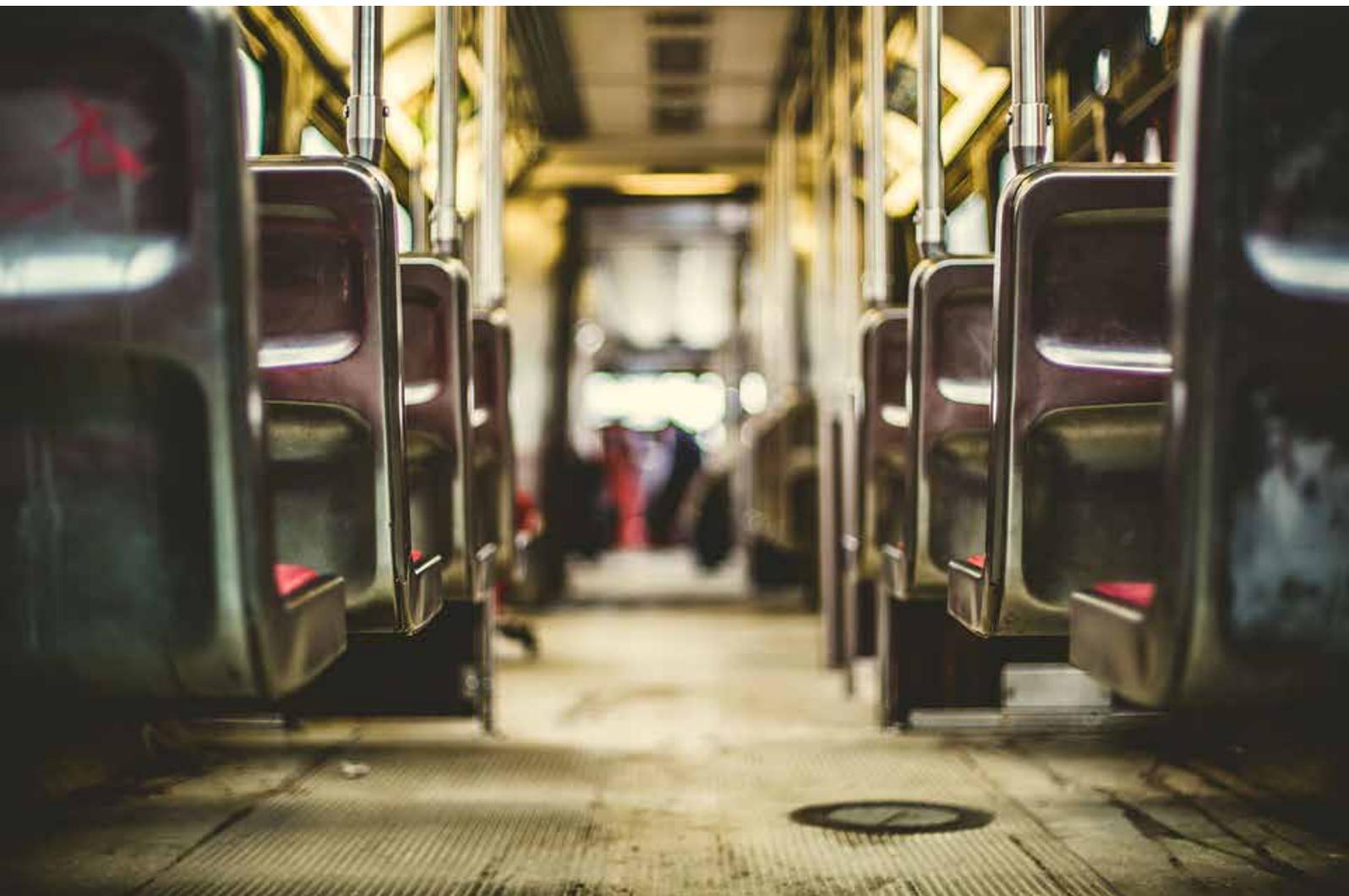
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SECTOR OVERVIEW: TRANSPORT

The Ethiopian transport sector is dominated by the road sub-sector accounting for about 90% of motorized transport in the country. Consequently, government expenditure on road development has been increasing over the years (Worku, 2010). As the dominant sub-sector, road transport in Ethiopia offers different means of moving goods and people in urban areas; mostly by walking - 45%, public transport (buses, mini-buses, taxis) – 40%, private vehicles – 10% and others – 5% (UN-Habitat, 2013). According to a report of the Organisation Internationale des Constructeurs d'Automobiles (OICA), Ethiopia as at 2015, had the lowest motorization rate in the world, estimated at 2 vehicles per 1000 inhabitants (OICA, 2018). Despite its relatively low rate of motorization, vehicle registration in Ethiopia continues to rise; especially

in the urban areas such as Addis Ababa which hosts about 70% of all vehicles registered in the country (Ethiopia Ministry of Transport, 2011). Cognizant of the environmental impacts of increasing vehicle ownership, the Ethiopian government in its Climate Resilient Green Economy strategy, is promoting a shift to more sustainable urban transport such as the light-rail transit and bus rapid transit systems. The initiative also aims at improving fuel efficiency standards for vehicles and encourages the adoption of hybrid and plug-in electric vehicles (Government of Ethiopia, 2011). The transport sector in Ethiopia is overseen by the Ministry of Transport with collaborative responsibility of other state institutions such as the Ministry of Water and Energy, the Ministry of Urban Development and Construction and the Environmental Protection Authority.



SECTOR OVERVIEW: WASTE MANAGEMENT

Waste management in Ethiopia is mandated in the country's 1995 constitution and in the 2007 Solid Waste Management Proclamation No. 513. The constitution stipulates that the government shall ensure that all citizens live in a clean and healthy environment whilst ensuring that the environment is kept protected from any damage (Federal Democratic Republic of Ethiopia, 1995). The Solid Waste Management Proclamation No. 513 advocates for active community participation in the formulation and implementation of plans and projects regarding the management of waste at all levels of governance. The proclamation also mandates urban or city administrations to provide adequate solid waste collection facilities for households and public places (Federal Democratic Republic of Ethiopia, 2007). At the national level, the Environmental Protection Agency of Ethiopia is responsible for ensuring that

environmental laws including solid waste management regulations are adhered to. The Agency, in 2011, formulated the National Environmental Policy that contains guidelines on how waste management should be executed (Cheever, 2011). Local authorities are expected to plan, collect, transport, store, recycle or dispose of waste at properly designated sites within their jurisdiction or within other jurisdictions with the permission of the respective authorities. Despite legal provisions in place, waste management challenges continue to face city administrators. These challenges range from inadequate collection facilities, poor waste transportation systems to inappropriate waste disposal (Regassa, Sundaraa, et al., 2011). In addressing these challenges some city authorities are devising innovative ways to tackle the issues. Examples of such solutions by the Addis Ababa city administration are highlighted in the following section.



CITY EXAMPLE: ACCRA

Addis Ababa, the capital of Ethiopia, represents the political and economic hub of the country. The population of the city as at 2010 was projected at 3 million and is growing at an annual rate of 2.1% (Atlas of Urban Expansion, 2016). Addis Ababa is noted to be among the fastest urbanizing metropolises in Africa. The city is faced with the common problems associated with rapid urbanisation such as inadequate transport infrastructure and services, insufficient energy supply for a growing energy demand, and challenges with urban waste management (Ethiopia Ministry of Transport, 2011). This section of the paper highlights some initiatives carried out by the Addis Ababa City Authority to address the challenges.

Urban transport in Addis Ababa, as noted in the city's Transport Policy of 2011, is challenged by inadequate transport infrastructure, weak traffic management systems, poor public transport services with resultant effects of traffic congestion, high incidence of vehicular pollution, among others (Ethiopia Ministry of Transport, 2011).

To derail the effects of this phenomenon on the socio-economic lives of urban dwellers in Addis Ababa, the city administration with support of the federal government and development partners initiated major transformative projects to improve urban transport in the city. Notable among these, is the development of a Light Rail Transit that began operation in 2015. The rail line runs over 17kms in length on a dedicated power grid. It is the first of its kind in the sub-Saharan African region (Nallet, C., 2018). Also, the City in collaboration with the French Development Agency (AfD) is developing a Bus Rapid Transit system on a 16km dedicated lane with interchanges, traffic management systems and shelters. The project is planned to begin operations in 2019 (French Development Agency, 2018). It is expected that these initiatives complement efforts to promote mass transportation and sustainable urban transport in Addis Ababa.

Concerning the city's energy sector, a report of the UN-Habitat on the state of Addis Ababa in 2017, indicated that residents are gradually



shifting to modern sources of energy for cooking and lighting; as such, the demand for electricity keeps growing whilst supply remains inadequate. The effects of a higher electricity demand and the inadequate supply are evident in the form of frequent power outages in Addis Ababa (UN-Habitat, 2017). In this light, collaborative efforts of city administrators and other stakeholders in improving energy supply, have been geared towards increased electricity generation from renewable sources. Examples of such initiatives include the development of a solar park with a 100 MW photovoltaic plant at Metehara, a town located east of Addis Ababa, which will be functional by 2019 (McCue, D., 2017). These initiatives complement the Ethiopian government's National Electrification Program which seeks to attain universal electricity access by 2025. The program aims at connecting 65% of the populace to the conventional national grid whilst 35% access electricity through off-grid systems (The World Bank, 2018a).

With regards to waste management, city administrators in Addis Ababa are devising ways to properly handle waste generated in the city. It is estimated that about 0.4kg/capita of waste is generated per day in Addis Ababa. However,

35% of waste produced daily remain uncollected; whereas the waste collected are dumped at open, unlined dumpsites which are largely considered as non-engineered landfills (Cheever, 2011). To address this situation, the government of Ethiopia and city authorities in Addis Ababa in partnership with international investors have established a waste-to-energy plant which incinerate about 80% of waste generated daily in the city. The electricity produced from the plant supply 30% of the city' household electricity needs (United Nations Environment Programme, 2017). Again, to improve on its waste disposal system, the Addis Ababa City Administration in 2016 constructed a new sanitary landfill in the town of Sendafa as authorities closed one of its decades-old landfill site which was in a deplorable state. The new landfill is expected to serve as a modern landfill for an environmentally efficient disposal of waste (Fasil, M., 2017).

It is expected that efforts by city authorities to promote mass transport, improve reliance on renewable energy, and ensure sustainable waste management in Addis Ababa will largely contribute to Ethiopia's commitments to mitigate and adapt to climate change effects.

REFERENCES

- Atlas of Urban Expansion, 2016. Addis Ababa. Available at: http://www.atlasofurbanexpansion.org/cities/view/Addis_Ababa [Accessed 18-06-2018].
- Ayele, Z., 2011. Local government in Ethiopia: still an apparatus of control? *Law, Democracy & Development*, 15 (1), .
- Bekele, Y. W. and Kjosavik, D. J. 2016. Decentralised Local Governance and Poverty Reduction in Post-1991 Ethiopia: A Political Economy Study. *Politics and Governance*, 4 (4), .
- Cheever, M., 2011. Environmental Policy Review 2011: Waste Management in Ethiopia. *Environmental Policy Review: Key Issues in Ethiopia 2011*, pp. 133. Available at: https://theredddesk.org/sites/default/files/environment_policy_of_ethiopia_1.pdf [Accessed 19-06-2018].
- Climate and Development Knowledge Network, 2017. Mapping of Energy Institutions and Initiatives in Ethiopia. Available at: <https://cdkn.org/wp-content/uploads/2018/02/Inventory-of-Energy-Initiatives.pdf> [Accessed 19-06-2018].
- Ethiopia Ministry of Transport, 2011. TRANSPORT POLICY OF ADDIS ABABA. Available at: <https://chilot.me/wp-content/uploads/2011/08/transport-policy-of-addis-ababa.pdf> [Accessed 19-06-2018].
- Fasil, M., 2017. In-depth analysis: Qoshe garbage dump collapse: A trail of corruption, criminal negligence and countless victims. Available at: <http://addisstandard.com/in-depth-analysis-qoshe-garbage-dump-collapse-a-trail-of-corruption-criminal-negligence-and-countless-victims/> [Accessed 19-06-2018].
- Federal Democratic Republic of Ethiopia, 1995. CONSTITUTION - PROCLAMATION NO. 1/1995: A PROCLAMATION TO PRONOUNCE THE COMING INTO EFFECT OF THE CONSTITUTION OF THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA. Available at: <http://www.ethiopia.gov.et/--8?inheritRedirect=true> [Accessed 18-06-2018].
- Federal Democratic Republic of Ethiopia, 2007. PROCLAMATION NO. 513/2007 - SOLID WASTE MANAGEMENT PROCLAMATION. Available at: <https://chilot.files.wordpress.com/2011/01/proc-no-513-solid-waste-management-proclamation.pdf> [Accessed 19-06-2018].
- Federal Democratic Republic of Ethiopia, 2015. Intended Nationally Determined Contribution (INDC) of the Federal Democratic Republic of Ethiopia. Available at: <http://www4.unfccc.int/ndcregistry/PublishedDocuments/Ethiopia%20First/INDC-Ethiopia-100615.pdf> [Accessed 18-06-2018].
- Federal Democratic Republic of Ethiopia, 2018. Government Structure. Available at: <http://www.ethiopia.gov.et/government-structure> [Accessed 18-06-2018].
- French Development Agency, 2018. First Bus Rapid Transit lane in Addis Ababa. Available at: <http://www.afd.fr/en/first-bus-rapid-transit-lane-addis-ababa> [Accessed 19-06-2018].
- Government of Ethiopia, 2011. Ethiopia's Climate-Resilient Green Economy - Green economy strategy. Available at: <https://www.undp.org/content/dam/ethiopia/docs/Ethiopia%20CRGE.pdf> [Accessed 19-06-2018].



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REFERENCES

- Government of Ethiopia, 2013. National Energy Policy of Ethiopia. Available at: <http://www.ab-yssinialaw.com/policies-and-strategies?start=20> [Accessed 19-06-2018].
- McCue, D., 2017. Enel to Build Solar Plant in Ethiopia. Available at: https://www.renewableenergymagazine.com/pv_solar/enel-to-build-solar-plant-in-ethiopia-20171023 [Accessed 19-06-2018].
- Mondal, M. A. H., Bryan, E., Ringler, C., Mekonnen, D., et al., 2018. Ethiopian energy status and demand scenarios: Prospects to improve energy efficiency and mitigate GHG emissions. *Energy*, 149 pp. 161-172.
- Nallet, C., 2018. The Challenge of Urban Mobility. A Case Study of Addis Ababa Light Rail, Ethiopia. Available at: <https://www.ifri.org/en/publications/notes-de-lifri/challenge-urban-mobility-case-study-addis-ababa-light-rail-ethiopia> [Accessed 19-06-2018].
- OICA, 2018. Motorization Rate 2015 – Worldwide. Available at: <http://www.oica.net/category/vehicles-in-use/>. [Accessed 19-06-2018].
- Regassa, N., Sundaraa, R. D. and Seboka, B. B. 2011. Challenges and opportunities in municipal solid waste management: The case of Addis Ababa city, central Ethiopia. *Journal of Human Ecology*, 33 (3), pp. 179-190.
- The World Bank, 2018a. ETHIOPIA ELECTRIFICATION PROGRAM. Available at: <http://documents.worldbank.org/curated/en/686501520132423023/pdf/ETHIOPIA-PAD-02092018.pdf> [Accessed 19-06-2018].
- The World Bank, 2018b. Ethiopia's Transformational Approach to Universal Electrification. Available at: <http://www.worldbank.org/en/news/feature/2018/03/08/ethiopias-transformational-approach-to-universal-electrification> [Accessed 19-06-2018].
- The World Bank, 2018c. Urban Institutional and Infrastructure Development Program. Available at: <http://documents.worldbank.org/curated/en/402291521252069584/pdf/UIIDP-PAD-P163452-22Feb2018-clean-02232018.pdf> [Accessed 19-06-2018].
- UN-Habitat, 2013. The State of Urban Passenger Transport. Available at: https://unhabitat.org/wp-content/uploads/2013/06/GRHS.2013_Rev.2014.01_02.pdf [Accessed 19-06-2018].
- UN-Habitat, 2017. The State of Addis Ababa 2017: The Addis Ababa we want. Available at: <https://unhabitat.org/books/the-state-of-addis-ababa-2017-the-addis-ababa-we-want/> [Accessed 19-06-2018].
- United Nations Environment Programme, 2017. Ethiopia's waste-to-energy plant is a first in Africa. Available at: <https://www.unenvironment.org/news-and-stories/story/ethiopias-waste-energy-plant-first-africa> [Accessed 19-06-2018].
- Worku, I., 2010. Road sector development and economic growth in Ethiopia. *Ethiopian Journal of Economics*, 19 (2), pp. 101-146.
- World Bank, 2018a. Ethiopia: Country Overview. Available at: <http://www.worldbank.org/en/country/ethiopia/overview> [Accessed 18-06-2018].
- World Bank, 2018b. World Bank data: Ethiopia. Available at: <https://data.worldbank.org/indicator/SP.POP.TOTL?locations=ET&view=chart> [Accessed 18-06-2018].
- Worldatlas, 2018. Ethiopia Geography. Available at: <https://www.worldatlas.com/webimage/country/africa/ethiopia/etland.htm> [Accessed 18-06-2018].

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