



Transport sector in Kenya's Nationally Determined Contribution

General country statistics

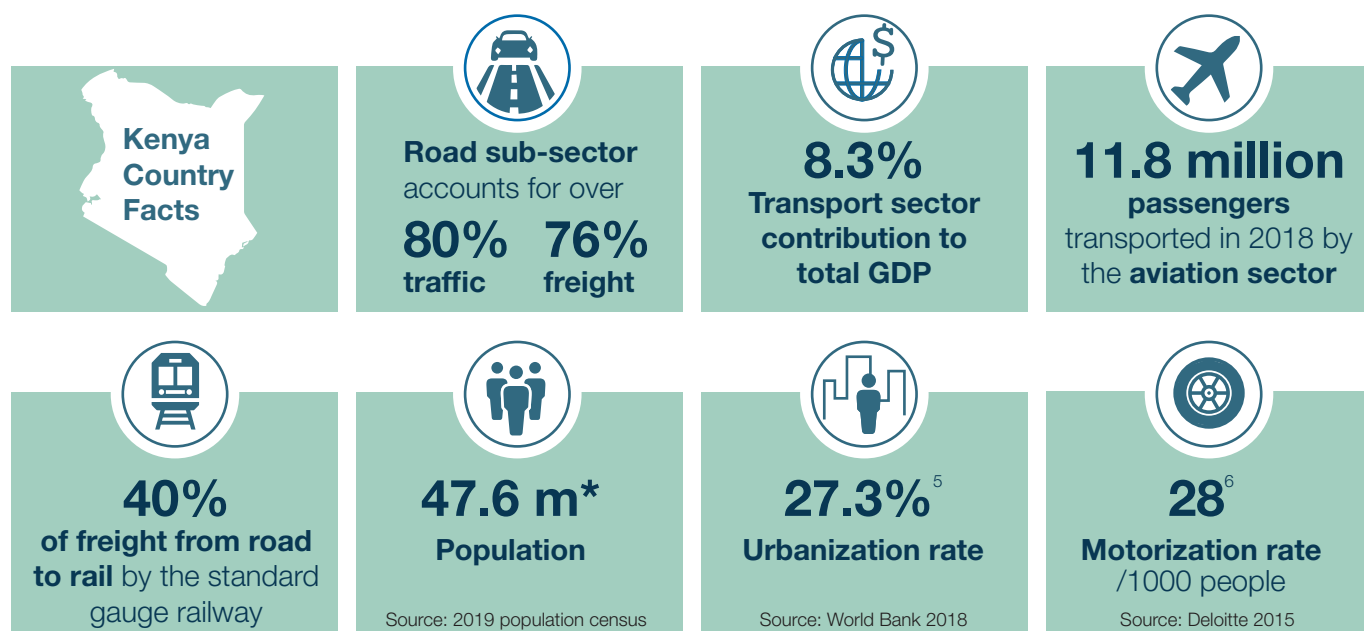
With a pristine coastline, extensive savannah grasslands, the great Rift Valley and other natural resources, Kenya has made significant strides in building a sustainable economy. Key legal frameworks to drive development include the country's economic blueprint Vision 2030 and its 2010 constitution. Vision 2030 aims to transform Kenya into an industrializing, middle-income country providing a high quality of life and a clean and secure environment for its citizenry. The 2010 constitution enacted devolution – a political process for transforming and promoting service delivery at the local level.

Kenya's movement of goods and people to facilitate economic activities takes place by road, rail, air or water. The road subsector accounts for over 80% of traffic and 76% of freight (Kenya Roads Board¹). As part of delivering Kenya's Vision 2030, the country recently constructed a standard gauge railway² from Mombasa to Naivasha (592 km in total), which will shift

at least 40% of freight from road to rail. The last phase of construction to Malaba (369 km), at the Ugandan border, is under construction. This is an important part of the East African Railway Master Plan.

Kenya's transport sector accounts for 8.3% of its total GDP.³ Its public transport system is privately operated, with the road transport network served by matatus (minibuses), taxis (traditional and ride-hailing services), bodabodas (motorcycles) and tuk tuks (three-wheelers). The aviation sector in 2018 transported 11.8 million passengers, both domestic and international.⁴ The maritime sector is a key pillar of the Kenyan economy. The Port of Mombasa serves as the entry and exit point for cargo not only for Kenya but for neighboring countries as well.

Kenya has acknowledged the importance of addressing climate change. A signatory of the Paris Agreement, Kenya enacted its Climate Change Act in 2016. The act highlights the importance of mainstreaming climate change across all sectors.

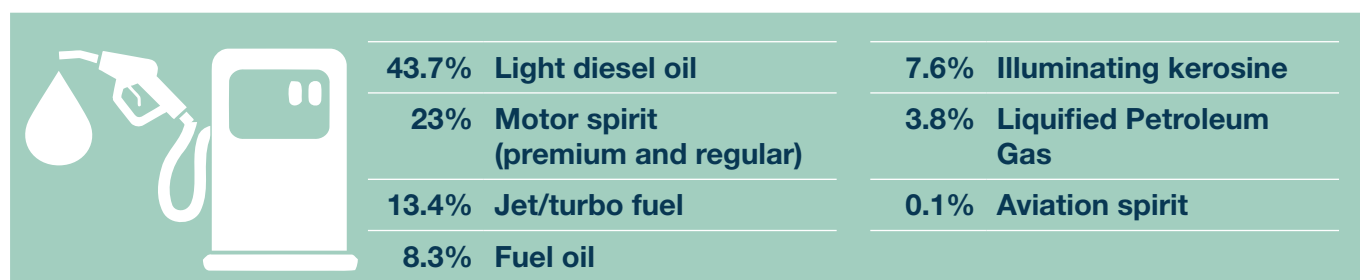


and developing a National Climate Change Action Plan to implement climate change action. Kenya's Nationally Determined Contribution commits to lower GHG emissions by 32% by 2030 relative to the business as usual (BAU) scenario of 143 MtCO₂eq. The sentence to read that Kenya's NDC commits to lower GHG emissions by 32% by 2030 relative to the business as usual scenario of 143 MtCO₂eq. Kenya has also put measures in place to promote the shift of passenger and freight from road to rail. The country is also in the process of developing legal and policy frameworks to promote the use of electric vehicles.

Total emissions and share of transport emissions

The transport sector is the largest consumer of petroleum products in Kenya and hence a major contributor to GHG emissions. In 2015, the sector accounted for about 67% of Kenya's energy-related CO₂ emissions and 11.3% of Kenya's total GHG emissions for fuel consumption in civil aviation, road transport and rail.⁷

Share of petroleum consumption by fuel type



Source: Kenya National Bureau of Statistics Kenya facts

Kenya's total GHG emissions in 2015

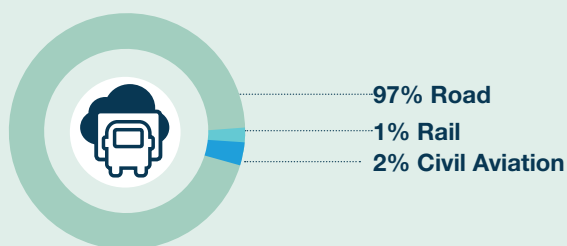
Sector emissions (Gg CO ₂ eq)	CO ₂	CH ₄	N ₂ O	HFCs	Total	Total as % share
Agriculture	34.5	22116.34	15181.02		37331.8	40%
LULUCF	35274.11				35274.1	38%
Energy	14339.9	1860.5	535.9	419.9	3175.0	18%
IPPU	2755.2	0.0	0.0		1053.2	3%
Waste	8.2	999.1	45.8			1%
Total emissions and removals by gas type (Gg CO ₂ eq)	52411.9	24976.0	15762.7	419.9	93570.5	100%

Share of energy sub-sector emissions⁸

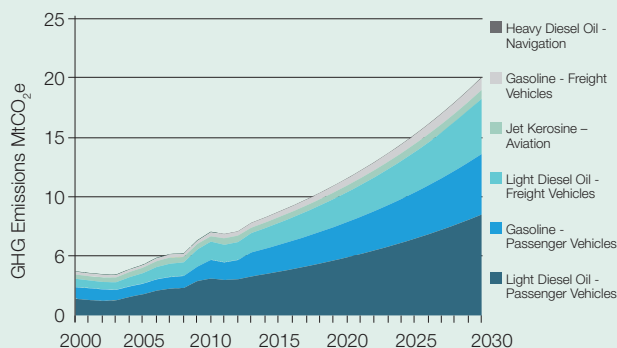
Energy Sector	Emissions in CO ₂ eq
Energy industries	101.30
Manufacturing industries and construction	1,412.40
Transport	11,253.60
Other sectors	39.69
Total energy emissions	16,736.40

Source: GHG inventory report 2020

Shares of transport emissions by sub category



Source: GHG inventory report (2020)



Transport Sector Baseline Emission Projection for Kenya (MtCO₂e)

Source: Government of Kenya (2015), Second National Communication

Kenya's transport NDC targets

Mitigation	Adaptation
<ul style="list-style-type: none"> Implement low carbon and efficient transportation systems in its updated NDC. 	<ul style="list-style-type: none"> Upscaling the construction of roads to systematically harvest water and reduce flooding Enhancing institutional capacities on climate proofing vulnerable road infrastructure
	<ul style="list-style-type: none"> through vulnerability assessments Promoting use of appropriate designs and building materials Enhance resilience of at least 4500 km of roads to climate risks

Kenya's National Climate Change Action Plan actions

Kenya's NDC refers to the National Climate Change Action Plan (2018-2022). Below are the measures identified for the transport sector.

Summary of plans for decarbonizing the transport sector.

Goal?	How?
To develop an affordable, safe and efficient public transport	Constructing BRT, piloting electric hybrid vehicles, extending the SGR and constructing non-motorized transport
Reduce fuel consumption and fuel overhead costs	Electrifying SGR from Mombasa to Nairobi, shifting 30% of freight from Mombasa to Nairobi from road to rail, improving heavy-duty and light-duty truck efficiency
Encourage low-carbon technologies in the aviation and maritime sectors	Creating shore power infrastructure at berths, purchasing fuel-efficient engines, introducing certification programs based on the sustainable aviation charter
Climate-proof transportation infrastructure	Using climate information for infrastructure planning and conducting feasibility studies on the construction of 4500 km of roads that mitigate floods
Promote enabling technology for the sector	Encouraging electric modes of transport as well as research on renewable energy for powering different modes of transport
Build capacity within the sector	Creating awareness of fuel economy and electric vehicle options and exploring their infrastructure needs
Introduce enabling policy measures	Implementing the Integrated National Transport Policy as well as developing standards to support electric mobility, climate proofing, planning and building for compact development

Source : National Climate Change Action Plan (2018-2022)

The transport sector and its ties to the energy sector

As in other countries, transport emissions in Kenya are linked to energy supply systems. Hence, decarbonizing the transport sector also means decarbonizing the energy sector. Electric vehicles use is considered one of the most promising technologies for decarbonizing the transport sector.

Demand for electricity in Kenya

According to a report of the National Energy Policy (2018), in 2017⁹ electricity made up 9% of overall energy requirements in Kenya. The shares for petroleum and renewable energy made up 22% and 69%, respectively. Below is a breakdown of Kenya's electricity generation in 2017 and its sources.



Electric mobility is considered as one of the most promising technologies to decarbonize the transport sector.

Electric power generation sources and energy generated

Sources of Electric Power Generation		Installed Capacity (June 2017)		Annual Generation (FY 2016/17)	
		MW	Percentage	(GWhours)	Percentage
Renewable Energy	Hydro	823.8	35.3%	3,340.9	32.74%
	Geothermal	652.0	28%	4,451.0	43.62%
	Wind	26.05	1.1%	63.2	0.62%
	Biomass	28.00	1.2%	0.7	0.01%
	Solar	0.66	0.02%	0.5	0.01%
	Imports	-	-	184.0	1.06%
	Total	1,530.51	65.6%	8,040.79	78.79%
Fossil Fuels	Medium Speed Diesel	716.32	30.7%	2,015.55	19.75%
	Gas Turbines	60	2.6%	108.2	1.06%
	High Speed Diesel (Isolated Stations)	26.24	1.1%	40.8	0.40%
	Emergency Powerplant	0	0	0.00%	0.00%
	Total	802.56	34.14	2,164.06	21.21%
Installed capacity and units generated		2,333.07MW		10,204.85GWhrs	

Source: Kenya National Energy Conservation Strategy 2020

Tradeoffs

Below is a summary of existing frameworks that reduce CO₂ emissions in the transport sector.

Electric vehicle standards

Kenya Bureau of Standards has developed standards for e-mobility on energy consumption, range of vehicles and fuel consumption measurements

Excise duty

the 2019/2020 budget lowered the excise duty of electric vehicles from 20% to 10%.

Kenya National Energy Conservation Strategy 2020¹⁰

The strategy aims to foster technology that promotes lower energy consumption. Transport is said to consume about 72 per cent of all petroleum products imported to Kenya. Among the outlined objectives is to increase the adoption of electric vehicles, improve fuel economy performance and reduce CO₂ emissions in Kenya.

End notes

- Kenya Roads Board: Kenya Transport Sector Details, <http://krb.go.ke/our-downloads/NCTIP/Annexes/Annex%203.1%20Kenyan%20Transport%20Sector%20Details%20ver%201.pdf>
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