



Urban Pathways

NATIONAL LOW CARBON URBAN ACTION PLAN

KENYA



**Wuppertal
Institut**

UN HABITAT
FOR A BETTER URBAN FUTURE

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Project concept

Project aims

The Urban Pathways project helps delivering on the Paris Agreement and the NDCs in the context of the New Urban Agenda and the Sustainable Development Goals. It has established a facility in close cooperation with other organisations and networks active in this area to support national and local governments to develop action plans and concrete implementation measures to boost low-carbon urban development. This builds on UN-Habitat's role as "a focal point on sustainable urbanisation and human settlements including in the implementation and follow-up and review of the New Urban Agenda". The project develops national action plans and local implementation concepts in key emerging economies with a high mitigation potential. The local implementation concepts are being developed into bankable projects, focusing on the access to urban basic services to create a direct link between climate change mitigation and sustainable development goals.

The project follows a structured approach to boost Low Carbon Plans for urban mobility, energy and waste management services that deliver on the Paris Agreement and the New Urban Agenda. The project works on concrete steps towards a maximum impact with regards to the contribution of urban basic services (mobility, energy and waste management) in cities to global climate change mitigation efforts and sustainable and inclusive urban development. This project makes an active contribution to achieve global climate change targets to a 1.5°C stabilisation pathway by unlocking the global emission reduction potential of urban energy, transport and resource sectors. The project will contribute to a direct emission reduction in the pilot and outreach countries, which will trigger a longer term emission reduction with the aim to replicate this regionally and globally to make a substantial contribution to the overall emission reduction potential.

This project implements integrated urban services solutions as proposed in the New Urban Agenda providing access to jobs and public services in urban areas, contributing to equality and social coherence and deliver on the Paris Agreement and the Sustainable Development Goals. This is the first dedicated implementation action oriented project, led by UN-Habitat to deliver on inclusive, low-carbon urban services. Securing sustainability and multiplier effect, the project aims to leverage domestic and international funding for the implementation projects that will follow from this initiative



Urban Pathways



Urban Pathways Project and Replication Cities

INTRODUCTION

The Republic of Kenya (Kenya) has developed an ambitious climate change strategy, which includes a pledge to reduce its greenhouse gas (GHG) emissions by 30% by 2030 relative to the business-as-usual (BAU) scenario of 143 million tonnes CO₂ equivalent (CO₂e) in line with its sustainable development agenda.

It is estimated that by 2050 about half the world population will be living in cities. The urban population of Kenya is concentrated along the Northern Corridor, which has led to the development of three urban hubs, the central hub (with Nairobi the focus city); the coastal hub (centralised around Mombasa); and the western hub (around the urban centers of Kisumu, Eldoret, Kericho, and Nakuru). The World Bank estimates that Kenya's capital city, Nairobi, will become home to 6 million people by 2030. Currently Nairobi is home to 4.5 million people.

Approximately 42 per cent of Kenya's national GDP is derived from its natural resource sectors (agriculture, forestry, fishing, water supply and energy). The services sector (which includes transport and communications, wholesale and retail trade, and financial and other services) accounts for about half of GDP. The industrial sector (manufacturing, construction, mining and quarrying) contributes the remaining 10 percent.

At COP-21 in 2015 in Paris, Kenya committed to a Nationally Determined Contribution (NDC) of reducing domestic GHG emissions by 30% in 2030 in comparison to a BAU projection - Kenya's NDCs builds on a baseline projection of 141 MtCO₂e in 2030, doubling from 2010 values. Addressing climate change holistically, in policy and through behavior change, is important for Kenya as the challenges from the negative impact of climate change pose a high risk to its people's livelihoods in particular and its economy in general. Kenya's economy is heavily dependent on agriculture and tourism, and its energy supply is reliant on hydro-power - making both these economy-contributing industries vulnerable to the adverse effects of global average atmospheric temperature increases.

The impact of climate change on Kenya is evident in the reduced output of its agricultural production due to changing rainfall patterns. Policy adjustments and national budget allocation are important for Kenya's NDC commitment to adapt and mitigate climate change - as escalating climate change will directly or indirectly affect food security, economic prosperity, and environmental sustainability.

Since 2015, the Kenyan Government, through its Ministry of Environment and Forestry, has been developing new legal frameworks for sustainable solid waste management, including:

- [the Extended Producer Responsibility regulation 2021](#);
- the [National Sustainable Waste Management Policy 2020](#);
- the [national E-Waste management strategy 2019](#); and
- the [Sustainable Waste Management policy 2015 and Bill, 2021](#)

While national regulations were developed in an inclusive and participatory approach, involving stakeholders of the waste chain, full enforcement of the same remains a challenge.

Existing initiatives and synergies

Placemaking, pedestrianization and sustainable mobility pilots

a) Transformation of Luthuli Avenue

Under Urban Pathways, UN-Habitat supported Nairobi in the transformation of Luthuli Avenue by providing technical advice on placemaking and re-design, as well as support for urban furniture. In 2018 it started with a placemaking week that was repeated in 2019 and extended to a re-design of existing infrastructure. The final design distributes space more equitably, creating more space for pedestrians, introducing street trees, a bike lane and bicycle parking facilities and seating among other street furniture.

Overall, the design has transformed the busy electronic street into a successful retail corridor that is welcoming and safe for all.



b) Cycling promotion and advocacy

Complementary to the technical advice on placemaking and physical implementation of pedestrian zones (Luthuli Avenue), the Urban Pathways project supported various cycling and advocacy events including high level participation. One example being the high-level bicycle ride with public officials in Kenya, organized to revive the interest for cycling, direct policies and to create an understanding of the opportunities and challenges of cycling in Nairobi.



c) Inclusive Mobility

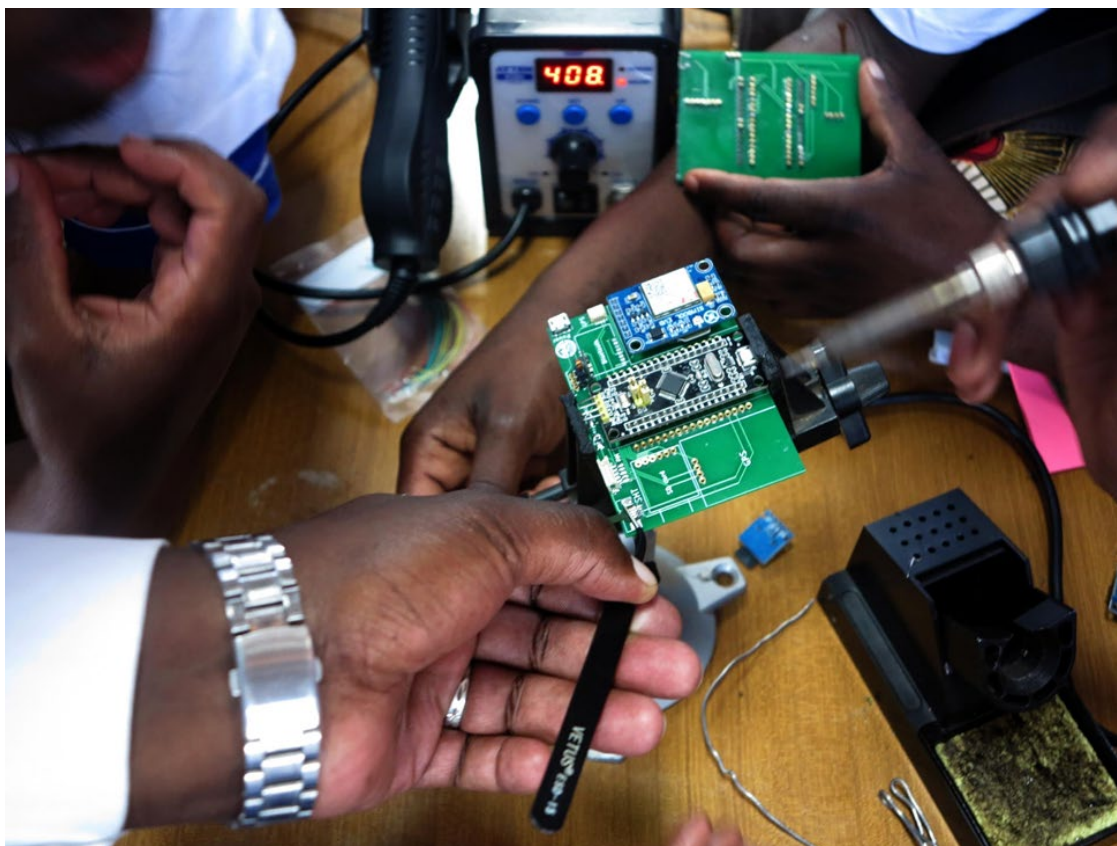
The Urban Pathways team, together with partners, supported the production of a film on accessible and low carbon public transport in Dar es Salaam and Nairobi. This film presents the contrast between the capitals of Tanzania and Kenya, in respect to implementation of an inclusive, low carbon transport system.



d) Air Quality Sensing powered by Citizen Science

Pollution in the Kenyan capital Nairobi is on the rise - and there is no escape from it. With Nairobi's predicted rise in population – and a constant inflow of cars due to the high motorization rate – an urban health crisis is anticipated if no action to lower pollution levels is taken. In an effort to measure air pollution, the Urban Pathways project spearheaded by UN-Habitat has joined hands with the University of Nairobi's Maker Space Lab in a project called “Open Seneca Nairobi – Air Quality Monitoring powered by citizen science”.

In a collaboration between the University of Nairobi Science and Technology Park - Maker Space Lab, Open Seneca, the University of Cambridge and UN-Habitat, a pilot project has started in Nairobi to build low cost mobile sensors in order to map out air pollution in Kenya's capital city. Building on the initial efforts, another round of devices was mounted with support from Urban Pathways, this time on BodaBodas (motorcycle taxis) to extend the data collection outreach and period. Data collection is currently ongoing and the results are analyzed by the students' team at Cambridge University.



Resource and Waste activities

Municipal solid waste data collection

With support from the Urban Pathways project, UN-Habitat supported Nairobi City Council to collect data on solid waste generation and collection, utilizing the Waste Wise Cities Tool (WaCT). WaCT assesses a city's municipal solid waste management (MSWM) performance through SDG indicator 11.6.1 monitoring. SDG indicator 11.6.1 quantifies parameters that help cities and countries to better manage resources, mitigate and prevent environmental pollution, create business, employment and livelihood opportunities, and shift towards a circular economy. This project has been piloted in Nairobi and Mombasa.



Inter-counties consultation for improved municipal solid waste management

Nairobi City County is bordering Kajiado, Kiambu and Machakos County. While the law states that waste generated in one county shall be disposed of in the same county, in reality, because of logistic and costs issues, it does not always occur. Therefore, coordination among neighbouring counties (Nairobi, Kajiado, Kiambu and Machakos) is a necessary step to set up sustainable and legal practices for solid waste management. To take a metropolitan approach

for municipal solid waste management, careful stakeholders' engagement and awareness raising for citizens are needed. UN-Habitat has been working with all counties on waste management improvements and is willing to facilitate an inter-counties dialogue to improve municipal solid waste management in the Nairobi Metropolitan Area, following the Urban Pathways approach. The goal of the project is, therefore, to establish a Municipal Solid Waste Management Metropolitan Plan (MSWMMP) among Nairobi City, Kajiado, Kiambu and Machakos County Governments to improve municipal solid waste management in the Nairobi Metropolitan Area.

Energy initiatives

Energy-Efficient Tiny House

With support from the Urban Pathways project, an energy efficient Tiny House was implemented as a prototype that was showcased to Member States during the UN-Habitat Assembly in 2019. Its design measures included passive measures (proper heating/cooling, lighting and natural ventilation) and installed PVs that saves operational energy use, as well as use of sustainable local materials contributing to reduced total life cycle energy cost. It is built on a self-build construction concept, supporting and increasing local capacities.



DRAFT NATIONAL ACTION PLAN

In this section we propose key focus areas that the government of Kenya still needs to put lots of emphasis on in order to establish low-carbon urban areas in the country. In the tables, the beginning of implementation period is provided as:

- i. S – Short term: Between 0 to 12 months
- ii. M – Medium term: Between 12 and 36 months
- iii. L – Long term: Over 36 months

Mobility

Focus area	Key Action	Implementation Period		
		S	M	L
1) Non-Motorized Transport (NMT)	Include planning for enhanced pedestrian and cycle routes in urban development plans, spearheaded by county governments	X		
	Enforce inclusion and budgeting for walkways and cycling paths in road infrastructure projects	X		
	Source for additional funding of NMT infrastructure in major cities		X	
	Work with county governments to establish city bike systems especially in major cities		X	
	Establish and operationalize “car free zones” in large cities such as Nairobi, Mombasa and Kisumu		X	
	Enforce laws to ban motorbikes (bodaboda) from using walkways and other NMT facilities	X		
2) Mass Transit	Introduce more wagons for the Nairobi urban railway system and increase frequency of transit per hour/day			X
	Operationalize the BRT system on Thika Super highway		X	
	Revive mass transit infrastructure in cities where there are existing neglected infrastructure such as Mombasa, Nakuru and Kisumu			X
	Lower parking fees at urban railway stations to encourage park and ride facilities	X		
	Optimize urban rail and bus transport services to provide easy interconnections among different modes of travel			X

Focus area	Key Action	Implementation		
		Period		
		S	M	L
3) Public Transport	Design and offer incentives on public transport such as discounts on urban railway /bus travel	X		
	Get into partnerships with bus operators, through their SACCOs in order to improve vehicle emissions through investment in newer vehicles or retrofit existing buses with clean exhaust technology.	X		
	Create a multi-stakeholder forum including public transporter, government agencies such as NEMA that aims to create awareness among bus/matatu operators on the need to lower carbon emissions	X		
	Establish government sponsored public transport in major cities, especially bus companies, so as to transform the sector from being profit oriented to service oriented.			X
	Provide incentives for companies to offer employee transport plans		X	
	Enforce driving and parking restrictions in certain zones to discourage use of private vehicles	X		
	Revise parking tariffs upwards in CBDs to discourage use of private vehicles in specific areas of large cities such as Nairobi, Mombasa and Kisumu	X		
4) Transition to zero-emission vehicles	Promote trial of new vehicle technologies in the market e.g. piloting of electric buses for public transport in cities such as Nairobi, Mombasa and Kisumu	X		
	Incentivize use of hybrid and Electric Vehicles (EV) for those buying new private cars	X		
	Promote deployment of smart mobility Electric Vehicle charging infrastructure.		X	
	Establish emission standards for imported vehicles		X	

Focus area	Key Action	Implementation		
		Period		
		S	M	L
5) Regulation and policy framework	Enforce utilization of indigenous knowledge in infrastructure development projects by introducing mandatory involvement of local professionals in design and implementation of such projects.	X		
	Establish the causes of gaps in implementation and enforcement of the existing laws in the transport sector and address such gaps to ensure improved compliance with the established laws.	X		
	Review and implement the Integrated National Transport Policy (2021)	X		
	Develop and implement standards for electric cars and two-wheelers		X	
	Develop or review standards for climate proofing transport infrastructure		X	
	Update and implement planning and building control regulations to encourage compact development, mixed use, and provision of parking near MRT stations.			X
6) Awareness and capacity building	Encourage domestic technology development for electric modes of transport	X		
	Update NITA training curriculum for mechanics and artisans to include new skill-sets such as electric mobility.		X	
	Run awareness and sensitization events informing urban residents about transport of the future and explaining how and why petrol and diesel vehicles will be phased out.	X		
	Partner with corporates to encourage staff to walk or cycle to work or use park and ride facilities		X	
	Establish skills exchange fora and platforms to promote data driven planning for urban transport and collaboration among key stakeholders such as government, private sector, academia and the citizens.	X		

Energy

Focus Area	Key Action	Implementation Period		
		S	M	L
1) Renewable Energy	Reduce tax on solar panels and solar energy equipment so as to increase adoption of solar to reduce energy consumption.	X		
	Revamp grid, storage and grid connection regulations so as to remove barriers for connection of renewable energy IPPs to the national grid.		X	
	Increase deployment of Electric Vehicle charging points		X	
	Promote adoption of Energy Performance Programs (e.g. battery storage, EV, charging, solar, schools solar)			X
	Enforce inclusion of electrical vehicle charging infrastructure in energy infrastructure development plans.	X		
	Support technological innovation in the fields of energy (storage, hydrogen, carbon capture and reuse, renewable energy generation, demand control and smart grid)		X	
2) Energy Efficiency	Promote adoption of LED light bulbs to reduce energy consumption whilst maintaining safety	X		
	Fast track replacement of high-pressure sodium street lights with low energy LEDs		X	
	Fast track replacement of incandescent traffic signal lanterns with low energy LEDs		X	
	Enforce installation of low energy LED street lights in new road infrastructure development projects	X		
	Establish programs that support energy efficiency in industries and transitioning to clean energy sources		X	
	Upscale innovative projects like the energy-efficient Tiny House	X		
3) Reducing use of fossil fuels	Establish steps for decommissioning electricity generation plants that rely on thermal fuels			X
	Establish talks with Independent Power Producers (IPPs) using thermal plants and set timelines for moving to clean energy			X
4) Regulation and policy framework	Audit the level of compliance with the existing laws and regulations and address any gaps that have been realized	X		

Waste

Focus Area	Key Action	Implementation		
		Period		
		S	M	L
1) Waste Inventory	Enforce separation of organic waste at source to simplify recycling process		X	
	Conduct a waste inventory and classification to better understand their sources and those with higher emission effects.	X		
	Analyze and validate waste collection data to establish a baseline waste generation.	X		
	Based on waste inventory findings, initiate projects that reduce the amount of municipal waste generated in households.		X	
2) Recycling and re-use	Using the established waste inventory, assess the realistic potential for recyclable waste and establish the quantity.		X	
	Promote recycling to divert collected waste away from disposal sites.		X	
	Advocate for decontamination and recycling of 100% of recyclable waste		X	
	Safeguard existing recycling capacity and support new aggregate recycling proposals.	X		
	Support local organizations that enable reuse of hazard free waste	X		
3) Collection and Disposal Methods	Work with county governments to consider alternative whole system approaches, reducing carbon impacts and improving efficiency and compliance with Environment Bill and Resources & Waste Strategy)		X	
	Review alternative waste disposal methods for various classes of waste		X	
	Determine longer-term feasibility and implementation of alternative disposal methods within boundaries of existing contracts and objective of low emissions			X
4) Closed Landfills	Manage and monitor closed landfills inclusive of landfill gas; reuse gas where feasible and minimize carbon impacts			X
	Enforce ban on landfilling of unsorted solid waste and untreated organic waste	X		
5) Regulation and policy framework	Develop and/or enforce county-based waste management plans and regulations that are consistent with the National Waste Management Strategy and other relevant policies		X	
	Establish and/or enforce obligatory treatment of organic and agricultural waste, while establishing mandatory standards for the use of treated waste		X	

Urban Planning

Focus Area	Key Action	Implementation		
		Period		
		S	M	L
1) Reduced trip lengths	Optimize mixed-use zoning to shorten trip distances	X		
2) Increased mass transit use	Restructure land value tax to increase value of land served by public transportation		X	
3) Increased building energy efficiency	Optimize Zoning regulation to promote multifamily and connected residential housing		X	
	Revise and/enforce the Kenyan building codes to establish a minimum share of renewable energy e.g. Mandatory solar PV on new buildings		X	
	Establish coordination of public-private retrofitting programs to increase local share of renewable and captured energy generation			X
4) Vulnerability to flooding	Optimize zoning regulation to create more open spaces in large cities. The open spaces usually act as buffer zones to flooding.			X
	Establish retrofitting and improvements to road networks and mass transit systems to reduce potential damage from flooding and urban surface runoffs	X		
5) Natural resources	Rejuvenate Tree-planting programs in urban areas	X		
6) Urban heat island effects and vulnerability to extreme heat	Review and enforce building codes requiring design materials that reduce heat island effects			X
	Review and enforce building codes requiring “green roofs” with vegetation or white surfaces			X
7) Optimal density	Incorporate optimal density in national master planning strategy	X		
	Integration of the principles and criteria for planning reinforced by public transportation and sustainable mobility		X	
8) Urban Renewal	Promote detailed and descriptive plans and policy documents for urban renewal e.g. the Nairobi Regeneration Program	X		
9) Regulation and Policy framework	Establish the causes of gaps in implementation and enforcement of the existing laws in urban planning and address such gaps to ensure improved compliance with the established laws.	X		
	Formulation of climate preparedness plans by all relevant ministries, state departments, agencies and county governments.	X		
	Formulation of climate risk maps and scenarios for decision makers in all relevant ministries, state departments, agencies and county governments.	X		

CONCLUSION

This document proposes actions that need to be undertaken by Kenyan government in order to complement existing activities and accelerate the realization of low-carbon urban areas in the region. This action plan needs to be implemented in an ecosystem of the several existing policies in the country today so that its full potential can be realized.

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More information about the
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