



# DECARBONISATION OF TRANSPORT IN AFRICA

A Transport Planning Perspective

**SUMMARY REPORT OF WORKSHOP**  
November 15-17, 2021

**iap** SCIENCE  
HEALTH  
POLICY  
the interacademy partnership



## 1. Background and Rationale for the Workshop

Globally, nearly a quarter of all greenhouse gas emissions come from the transportation sector. While much focus has understandably been placed on the largest CO<sub>2</sub> emitting economies, there is an exciting opportunity to focus more attention on Africa. Though Africa currently has one of the lowest motorization rates globally, it is poised to become a major new player in the transport sector in the near future, with the potential to become a leader in the decarbonisation of transport movement. Leapfrogging fossil-fueled transportation promises economic, environmental, human health, and infrastructure benefits to African governments and societies. Further, Africa's rich renewable energy resources, mild climate, short daily travelled distances, and young workforce make the Continent's potential for electrification uptake strong. While some governments have taken laudable steps in reducing fossil fuel use in the transport sector, these efforts must be further coordinated and scaled up to secure the Continent's energy future. Barriers include lack of enabling policy frameworks and integrated planning, the affordability of electric vehicles, unreliable electricity generation, lack of awareness, and a lack of supporting infrastructure, particularly in rural areas.

Led by the InterAcademy Partnership (IAP), and its African regional academy network, NASAC, an online scoping workshop on Decarbonisation of Transport in Africa was organized from 15<sup>th</sup> to 17<sup>th</sup> November, 2021<sup>1</sup>, which convened relevant policy-makers in the region, international and regional experts, funding organizations, members of the scientific community and other stakeholders to present their views and engage in discussions on:

- Existing **policy frameworks**, from global, regional and local contexts, the challenges & opportunities thereto, and the steps that need to be taken to develop and implement policies that would serve as enablers towards sustainable transport in Africa.
- Trends in the **financing mechanisms** that are in place to support strategic and technical studies, as well as implementation of these strategies on the ground. The discussion was also expected to indicate the prospects of financing opportunities that may exist in the future to support the decarbonisation agenda in Africa.
- Ongoing **global and regional initiatives** and best practices towards decarbonisation of transport, to draw lessons learnt from such initiatives and to identify gaps and potential areas of intervention in future initiatives,
- The issue of **transport planning** in the context of the decarbonisation agenda, focusing on strategic planning considerations at the regional and local levels giving due emphasis to urban, public-transport, rural to urban connectivity, and non-motorized transport considerations.

Over the three days, 178 participants from 41 countries (27 countries in Africa and 14 others), across government/intergovernmental, academia and academies, NGOs, and the private sector participated. The workshop was intended to help frame the potential focus area of the anticipated IAP-NASAC two-year follow-up study on the challenges and opportunities for decarbonisation of transport in Africa, including the potential sources and mechanisms of funding for the study. IAP and NASAC plan to establish an expert working group to develop and carry out a study to answer a commonly agreed series of questions emerging from the workshop. This report provides a brief summary of the workshop proceedings, findings

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<sup>1</sup> The workshop agenda is available online at: <https://docs.google.com/document/d/1W4g-viQt4HbfSXzrMaAz83uh6jX8pqhH/edit#heading=h.gjdgxs>

and recommendations and synthesizes the emerging questions on which the study may focus, including policy and regulations, financing, technologies, modal shifts, urban design, and investments.

## 2. Policy Perspectives

The first panel on day-one of the workshop focused on the policy framework, challenges and opportunities towards decarbonisation of transport in Africa from the perspectives of policymakers represented by the African Union Commission (AUC), the Ethiopian Ministry of Transport and Logistics, and the United Nations Environment Programme (UNEP).

The African Union has identified the need to transition to green growth through the development of renewable energy sources and a low carbon economy, offsetting CO<sub>2</sub> through reduction in air transport emissions, access to safe and cleaner vehicles, and alternative fuels and reliable energy for Maritime Transport as the key steps towards realizing net zero emissions in Africa. Accordingly, AU's Agenda 2063, emphasizes environmentally sustainable and climate resilient economies/communities through sustainable natural resource management, sustainable consumption/production patterns, renewable energy generation, and climate resilience.

The AUC Infrastructure and Energy Department (IED)<sup>2</sup> has the mandate to enhance regional and continental efforts for infrastructure development and the sustainable deployment of energy resources. Within this mandate, the AUC is supporting a wide range of initiatives in the transport sector in line with Agenda 2063. The main focus of these initiatives are:

- Promotion of safer and cleaner imported cars
- Supporting the development of the African Railway Market and the shift from road to railway transport,
- Reduction of emissions from the aviation sector by supporting State Environmental Action Plans, sustainable fuels, and market-based measures,
- Working closely with regional and global stakeholders to tackle climate change issues and providing policy support towards the decarbonisation of the maritime sector

***Dr. Raissa Ada Allogo, Senior Policy Officer at the AUC-IED stressed that transition to zero-carbon transport is needed to implement Agenda 2063 and the importance of transport decarbonisation to fulfill countries' national commitments under the Paris agreement.***

Ethiopia has created a Climate Resilient Green Economy (CRGE)<sup>3</sup> strategy to curb the challenges of greenhouse gas emissions and climate change emissions. The strategy emphasizes an increase in generation of electricity from renewable sources for both regional and domestic markets. The country has developed policies and strategies that promote public transport and Non-Motorized Transport (NMT), as well as shift to cleaner fuels for passenger and freight transport.

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<sup>2</sup><https://au.int/en/ie>

<sup>3</sup> Ethiopia's Climate-Resilient Green Economy (CRGE), Green Economy Strategy, Federal Democratic Republic of Ethiopia, Nov. 2011.

*Her Excellency Dagmawit Moges, Ethiopia's Minister of Transport and Logistics, emphasized the need for developing and implementing robust and sustainable urban planning strategies and long-term transport master plan as the first steps towards ensuring a sustainable transport system.*

Accordingly, Ethiopia is finalizing a 30-year transport master plan, which will guide the transport development of the country at both urban and rural levels, in a manner that enhances connectivity at national and regional level in a sustainable manner.

UNEP is supporting a wide range of urban mobility initiatives including e-mobility projects in more than 40 countries by promoting the avoid-shift-improve (ASI) framework (Avoid the need for motorized travel, shift to environmentally friendly modes, improve energy efficiency of transport). The adoption of appropriate policies and standards on cleaner fuels, vehicles, walking/cycling, ports, electric vehicles, and public transport is a crucial first step towards ensuring sustainable mobility in Africa.

*According to Mr. Rob de Jong, Head of Mobility Unit at UNEP, most African cities are taking a range of approaches aligned with the ASI framework; however, solutions are being introduced at a slower pace compared to the growth rate of motorization and associated emissions.*

It was reported that to date 31 African countries have introduced sustainable mobility policies, and 11 African countries have adopted low sulfur fuels. There are opportunities for leapfrogging to electric mobility technologies in Africa if the right policies are in place to promote investment, including by the private sector. Some African cities have already introduced mass transit systems such as Bus Rapid Transit (BRT) and Lightrail Transit (LRT) that can be taken as best practices. UNEP engages on a number of initiatives supporting African cities in the formulation and adoption of policies and standards on cleaner fuels, vehicle standards, electric vehicles, walking and cycling, and mass/public transport. It also provides technical and capacity building support at city and national levels.

Enabling institutional/governance framework and technical capacity is considered to be a key component towards formulation of conducive policies and implementation of measures to ensure sustainable mobility and transport system in Africa. In this regard, the Sub-Saharan Africa Transport Policy Program (SSATP)<sup>4</sup> promotes the Enable-Avoid-Shift-Improve (EASI) framework. The EASI framework builds on the ASI framework with the inclusion of the Enable component, to fill the gaps observed in many African countries and cities in terms of governance systems that can promote sustainable transport policies and systems as well as technical capability required for their proper implementation and management.

### 3. Financing Perspectives

There is a significant gap in available transport decarbonisation finance due first to low market demand, secondly to the fact that most finance is going to the generation of green energy, and thirdly to the focus on hard infrastructure by development finance institutions (DFIs) and governments to meet connectivity needs. Currently it is difficult to estimate the finance gap in decarbonisation. The World Bank estimates the investment need at 3% of GDP from 2015 to 2030 in Sub-Saharan Africa to achieve decarbonisation, while actual spending is between 1.0 - 1.5% GDP, mostly on roads and large infrastructure. There is also the so-called “underfunding trap” in public transport, exacerbated by the inability for public transit systems to generate enough revenue and hence becoming a political hostage in public budgets. The large

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<sup>4</sup> <https://www.ssatp.org/>



capital investment needs for public transport infrastructure are also not met by many cities due to the lack of creditworthiness.

Recommended approaches to closing the large funding gap in decarbonisation are the creation of an enabling environment by improving the regulatory environment and increasing capacity building and funding to finance the transition to low carbon solutions. Actions towards a more enabling environment that would create funding opportunities include:

- Removing distortive explicit or implicit subsidies to ensure that cars pay the true social cost of using roads,
- Internalizing social costs for private motorized users,
- Recycling tax revenues from transport externality pricing and carbon pricing,
- Pricing into green investments/infrastructure,
- Optimizing tax bases by anticipating a reduction in fuel tax collection,
- Reviewing construction codes, land use regulations, and parking policies,
- Improving quality/efficiency of public spending, and
- Identifying new ways to mobilize commercial finance.

*According to **Daniel Benitez** of the World Bank, a series of policies, investments and behavioral changes are necessary to curb emissions. Innovative financial solutions can be explored to consolidate demand for clean mobility and attract a new set of investors. For instance, a regional financing solution, among other options, can bring scale, diversity, risks, and reductions of transaction costs, and offer blended financing, credit enhancements, and technical assistance to manage challenges/risks to decarbonize transport. Benitez also stressed the need to mobilize commercial finance to reduce the huge gap in global development finance.*

The World Bank, in partnership with the WRI and the Netherlands' Royal Ministry of Infrastructure and Water Management, has released a discussion paper in November 2021, on "*Financing Low Carbon Transport Solutions in Developing Countries*," which explores transport decarbonisation investment mechanisms.

The private sector is expected to take a leading role with regard to electric mobility, with many resulting business opportunities for the sector. In Africa, the private sector is springing up and producing electric motorcycles as well as converting conventional vehicles to electric, which is indicative of the potential to lead the local switch to electric mobility. UNEP is now hosting an electric mobility platform<sup>5</sup> across Africa where the private sector can be involved. There are many UNEP electric vehicle projects in Africa looking at policy, infrastructure, charging, local manufacturing potential, financing mechanisms and electric taxi services. UNEP also supports projects in promoting walking and cycling investment through in-country support to develop non-motorized transport (NMT) policies, training on street design, development of toolkits to assess NMT benefits, advocacy and communication support, and regional network and information sharing.

The focus should also shift from the cost of electric mobility to its financing. For instance, an electric motorcycle may cost more than a conventional one initially, but the driver could make up the difference in a few months from savings in fuel and other operational costs, leading effectively to a doubling of the

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<sup>5</sup> <https://www.unep.org/explore-topics/transport/what-we-do/global-electric-mobility-programme>

driver's spendable income. Therefore, the focus must be on realizing financing mechanisms that will help the motorcyclist to buy the more expensive vehicle that will eventually improve the livelihood of the owner in an environmentally sustainable manner.

Funding decarbonisation initiatives in developing countries is often a challenge due to competition with the huge investment needs for conventional transport infrastructure investment such as roads and improving connectivity. Therefore, public spending needs to be strategic and comprehensive in addressing the different elements of decarbonisation as well as connectivity. Local investment banks also need to revamp their support to electric mobility when it comes to lending.

#### 4. Global and Regional Initiatives and Best Practices

A recent study by IAP's **European Regional Network, EASAC**, on decarbonisation of transport, provided policy recommendations to EU policymakers, which highlighted the need for decarbonizing the energy value chains through renewable energy sources, improving the energy conversion efficiency, and implementing the A-S-I framework. Recommended policy options for the long-term included generation of low GHG electricity for all sectors, acceleration of markets/infrastructure for battery-electric, plug-in hybrid, and electric road systems, and developing synthetic fuels.

The **SSATP**, led by the World Bank, is working in partnership with international financiers, regional and global academic and knowledge institutions, and 42 African member countries to mainstream decarbonisation in transport policies. They work closely with countries and regional economic communities (RECs) to develop knowledge in the transport sector to foster regional integration, innovation, capacity building, and advocacy through technical studies, annual meetings, conferences, and policy dialogues. The program is starting a new cycle (DP4 Plan: 2021 – 2025)<sup>6</sup> focused on digitalization and decarbonisation in the African transport sector, across four pillars (regional connectivity, urban mobility, road safety, resilient road asset management).

**Sustainable Energy for All (SEforAll)** is providing solutions towards sustainable urban mobility by identifying focal African cities that have good governance and are fast growing, or are large and have low public transit use. Among the solutions identified towards ensuring sustainable mobility and decarbonisation of transport, in line with the A-S-I framework, are: Travel demand management and digital disruptors to better plan infrastructure and enable users to increase ridership; Better understanding and mapping derived energy and transport demands to achieve efficiency synergies; Two wheelers, minibuses, shared mobility and public transportation powered by renewable electricity could yield efficiency benefits and enable sustainable mobility. *According to Brian Dean, Head of Energy Efficiency at SEforAll, by applying vehicle electrification to shared mobility and public transportation, a large portion of the public may have access to shared or public electric vehicles sooner than to privately owned electric passenger ones.* Integrated energy, land-use, and mobility planning (including the integrated planning of public and informal transport) could ensure systemic efficiency gains by avoiding transit through better urban planning and improving efficiency of vehicles through types of transit used.

**UNEP's No and Low Emissions Project** is developing a cost/benefit analysis and financing plan for soot-free/electric buses in Lagos, Nigeria, using scenario modeling. The study focused on BRT buses with inputs

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<sup>6</sup> <https://www.ssatp.org/publication/presentation-fourth-development-plan-dp4-concept>

such as GDP, population and vehicle stock, from Lagos Metropolitan Area Transport Authority (LAMATA) travel and Nigeria's National Bureau of Statistics data. The results demonstrated that electric bus transition in Lagos could be a promising opportunity (expected reductions of 400,000 tons of CO<sub>2</sub>) with numerous health and environmental benefits. Barriers identified to the transition include lack of policies on electric buses, inadequacy of infrastructure and energy sources, lack of flexible financing, and access to technology.

With global vehicle manufacturers committed to phasing out internal combustion (IC) engines in the next couple of decades, it is crucial that developing countries, including those in Africa, expedite the shift towards electric mobility and avoid becoming a dumping ground for high-emitting vehicles. The fast growing transport-related carbon emissions in Sub-Saharan Africa (SSA), with a reported 75% increase between 2000 and 2016, is another justification for the urgency of transport decarbonisation<sup>7</sup>. Opportunities do exist in many African countries to have totally green transport services, with trends in renewable energy sources supply outweighing demand in countries like Uganda.<sup>8</sup> The role of the private sector in the mobility arena and decarbonisation efforts is crucial, with opportunities to bring new technologies for improvement of public transport operations and provision of financing to test and scale-up new ideas when government funds are limited.

The **World Resources Institute (WRI) Africa** is supporting a number of initiatives via public-private partnerships towards electrification of transport in East Africa. There is already evidence of a rise of new local mobility companies that leverage technology to improve transport. The Zembo Electric Motorcycles<sup>9</sup> (an e-mobility PPP pilot) in Kampala is one of such cases. At the National level, the Government of Kenya is partnering with the private sector and Universities on a larger scale PPP initiative to scale-up electric mobility assembly/manufacturing, with a goal to increase electric 2-3 wheelers by 15% over 5 years.

*On challenges to integrating electrification into informal transport, **Anna Oursler, Urban Mobility Coordinator at WRI-Africa**, pointed out the need for emissions standards, enforcement, and tax subsidies to mandate the transitioning of minibuses or taxis to electric vehicles, as the informal transit sector tends to use very old vehicles.*

An assessment by the WRI into the feasibility and readiness of e-mobility transitions in Uganda concluded that Uganda is not yet ready, citing the lack of coalition partnerships across sectors (research, industry and government), and a lack of finance, including government investment in large EV infrastructure. Instead WRI's study recommends considering EVs as part of the broader context of land use and urban planning policy towards sustainable urban mobility. The Transformative Urban Mobility Initiative (TUMI) regional electric bus mission<sup>10</sup> which supports 20 cities around the world, including 3 in SSA, in their transition towards electric bus deployment, has identified the pitfalls of the "pilot carousel," where there is only enough money for e-mobility pilots and not their scale-up, as one of the reasons for the limited/lack of success in the e-mobility transition. This finding indicates the need for identifying and tackling the barriers to scaling-up e-mobility initiatives.

The **International Transport Forum**, an intergovernmental organization and a global think tank for transport policy, provides a mechanism to analyze international transport policy trends, share knowledge

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<sup>7</sup> <https://www.wri.org/insights/everything-you-need-know-about-fastest-growing-source-global-emissions-transport>

<sup>8</sup> Uganda Electricity Regulatory Authority, <https://www.era.or.ug/index.php/transmission/maximum-demand#>

<sup>9</sup> <https://www.zem.bo/>

<sup>10</sup> <https://www.transformative-mobility.org/campaigns/tumi-e-bus-mission>

and promote exchange amongst decision makers. The ITF forecasts that demand for passenger travel will increase fivefold and movement of goods will triple in Africa by 2050, driven by increasing prosperity and population growth. Accordingly, by 2050, total CO<sub>2</sub> emissions from Africa's transport sector are expected to grow by 200% of 2015 levels (240% for passenger and 130% for freight transport).<sup>11</sup>

Recommended actions needed to flatten/reverse the growth curve, and realize net-zero emission and resilient transport in Africa include: Implementation of a diverse mix of policies to realize rapid, sustained and large-scale reductions of emissions; Collaboration between the public and private sectors to seize decarbonisation opportunities; Policy incentives to facilitate and capture the significant potential of electric vehicle (including two-wheelers) adoption in Africa; Capitalize on opportunities to leapfrog to sustainable transport with the help of innovation and technology; and facilitate innovative and adequate financial investments to scale up and replicate emission reduction actions.

*Dr. Guineng Chen, Team Lead for Data and Policy Analytics at ITF, further stressed the need to intensify collaboration with non-transport sectors such as energy, trade, and tourism, and expand PPPs to maximize the benefits of new mobility options and integrate land-use decisions with transport planning, in order to realize sustainable transport.*

Transport and land use patterns are codependent. Billions of urban dwellers don't have access to services provided by cities. Current development patterns are affecting climate and impacting access to basic services, with the poor and those living in informal settlements being the most affected.<sup>12</sup> With the major share of the urban infrastructure in Africa yet to be built, there is an opportunity for a sustainable, integrated and equitable urban planning and service delivery.

WRI has produced a report looking at transformations for equitable cities, focusing on infrastructure design and urban land management. It emphasizes the need to shift from talking about mobility to providing equitable access to transport and basic services in African cities. There is also a need to shift the paradigm from car-oriented complete street networks, and manage demand for private vehicle use.

In the urban planning process, considerations of population density, connectivity, and access to services should take into account the fact that the majority of the population in African cities are pedestrians that walk to their destinations. There is also a need for regulations/incentives that improve access to services for informal settlements.

The **Institute for Transportation and Development Policy** has looked at the impacts of two scenarios for investment and planning transport systems based on an investigation of the investment model of around 188 cities in Africa representing 389 million people and 770 million daily trips. Under the status quo "car-oriented" scenario of building wider roads, majority of transport will be absorbed by the private sector via cars and motorcycles. Under the sustainable scenario (focus on public transport and NMT), if the number of private vehicles are capped and investment occurs in public transit to accommodate trip growth, emissions are expected to be kept to only a modest increase compared to current trajectory, but a sizeable investment is needed. There is also a need to look into the current public transport business

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<sup>11</sup> ITF Transport Outlook 2021, <https://www.itf-oecd.org/itf-transport-outlook-2021>

<sup>12</sup> Mahendra, A., R. *et al.* 2021. "Seven Transformations for More Equitable and Sustainable Cities." World Resources Report, Towards a More Equal City. Washington, DC: World Resources Institute. <https://doi.org/10.46830/wri rpt.19.00124>. Available online at [publications.wri.org/transformations-equitable-sustainable-cities](https://publications.wri.org/transformations-equitable-sustainable-cities).



model in Africa where all risk is allocated to private sector, by looking into new models which promote risk-sharing and efficiency, rather than only profit-making.

Electric vehicles and associated technologies are advancing at a high rate, with a wide range of alternative technologies available. In the transition to electric mobility, African countries need to consider the gap between initial cost of the conventional vehicle and electric vehicle, availability and cost of charging infrastructure, power requirements and available supply, while selecting and prioritizing appropriate technologies.

Cities are at the forefront of lowering carbon footprint with a share of more than 70% of global CO<sub>2</sub> emissions, urban transport being a significant contributor.<sup>13</sup> Ineffective land use regulations that are unrealistic in developing countries lead to a chronic lack of housing and price out lower income groups, leading to informal settlements. The World Bank is launching new research examining the context of land use with respect to sustainable urban transport, including more efficient and market-friendly land use regulations and more affordable built area and mixed use spaces. Transport decarbonisation initiatives should also account for cross-cutting issues of culture and diversity in terms of age, gender, income, education, etc. to ensure inclusivity and universality and ensure a match to diverse user needs.

## 5. Scoping the study: Reflections from the Academies, Research and Funding Communities

**The Climate and Development Knowledge Network** has conducted a research project on the potential for electric mini-buses in Nairobi, Cape Town, and Cairo. Given that mini-buses comprise the majority of urban transport in African cities, are a large source of pollution, and cause poor respiratory outcomes in workers, the electrification of mini-buses in these cities has great potential for impact. Through the project, movement towards electrification was observed in all three cities, with greatest success in Cairo and Nairobi. In order to further e-bus adoption, the project highlighted the need to review counterproductive policies to encourage the use of e-buses, increase stability of the electric energy supply, and innovate off-grid charging solutions. Development standards in the e-bus value chain must also be created and innovative financing should be utilized to support the electrification of mini-buses.

**Prof. Stuart Piketh, Professor at North-West University and member of the Academy of Science of South Africa, gave an overview of the state of South African efforts to decarbonize transport.** Currently transport emissions in South Africa have plateaued due to a lag in economic growth. Ensuring that this plateau isn't reversed during future economic growth will be key. Recently the South African government released a white paper that identified transport as a focal sector to decarbonize the economy. When planning for sustainable transport, rapid urbanization of African cities, sprawl, infrastructure maintenance backlogs, and unionizing of taxi systems should be considered. Currently, there are 5-7 major sustainable transport programs in the country that are in the planning stage. Transit-oriented development, enhancing transport authority governance, and embracing decarbonisation technologies will be key to ensuring low carbon transport for the future.

**The Volvo Research and Educational Foundations (VREF)** supports research and educational activities within urban transport, through open calls for proposals. VREF's Mobility and Access in African Cities

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<sup>13</sup> <https://blogs.worldbank.org/sustainablecities/cutting-global-carbon-emissions-where-do-cities-stand>

(MAC) program aims to increase knowledge and capacity on equitable and sustainable mobility and access in SSA focusing on 6 themes ranging from access needs/equity issues, governance and politics, emerging business models, safety, health and urban environment, transportation systems design, and developing and testing analytical tools.

**ClimateWorks Foundation** supports transport decarbonisation efforts in three areas: Advance smart government policies to drive EV supply and demand, engage business leaders and investors to mobilize private finance to prioritize EV investments and increase business support for key policies; mobilize diverse people-powered coalitions to create jobs, improve health, achieve environmental justice. The next five or so years are critical to avoid locking in dirty transportation and instead invest in clean and affordable zero emission bikes, cars, buses, and trucks. There are opportunities for leapfrogging technology in Africa, which was suggested as a potential opportunity for the IAP-NASAC study to explore.

**African Climate Foundation (ACF)**, founded in April 2020, is the first African-led and African-run climate change re-granter on the Continent. ACF's funding focuses on energy access and transitions, resilient urban environments, and sustainable land use and agriculture. Currently only 4% of the global climate change research funding goes to Africa. ACF believes in the importance of building local knowledge.

*Ellen Davies, Director of Research at ACF believes that the planned IAP-NASAC project is important in strengthening the local knowledge base and helping ACF build its low-carbon transport program. The following are potential questions of interest to ACF that the study may address:*

- Global supply and demand (impact of second hand vehicle dumping from Europe to Africa)
- Unlocking local EV manufacturing in Africa - what enabling environments are needed and how to link this to Africa Free Trade Agreement
- Case studies on local innovations
- Understanding infrastructure needs to unlock low carbon transport technologies

*According to **Rebecca Fisher**, Associate Director of Road Transportation at ClimateWorks, coordination is key to mobilizing funding and business efforts to support low carbon transport in Africa, and she considers this scoping workshop important in identifying steps to accelerate the electrification of transport in Africa with respect to government, philanthropic, and private funding. **Henrik Nolmark**, Director of VREF, recommends a bottom-up coordination approach.*

The ITF Decarbonising Transport Award<sup>14</sup>, which supports the transition to zero-carbon transport in newly prosperous countries that face growing demand for mobility, also offers an interesting funding opportunity. Award winners receive financial support for their proposed project and the opportunity to collaborate with the ITF.

It is also crucial that African governments invest in climate change research to nurture homegrown solutions, to examine what Africa wants as a continent, and to ensure sustainable development in the African context.

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<sup>14</sup> <https://www.itf-oecd.org/decarbonising-transport-award#:~:text=The%20Decarbonising%20Transport%20Award%20supports,to%20collaborate%20with%20the%20ITF>

## 6. Conclusions and Recommendations

### Conclusions

The workshop has shed light on the increasing trend in transport demand, motorization and CO<sub>2</sub> emissions in Africa, as well as a number of promising initiatives towards sustainable mobility across the continent. It also highlighted some of the major challenges that African countries and cities are facing as they try to strike a balance between the need for access and mobility and the need for transport decarbonisation, thereby ensuring sustainability.

The Enable-Avoid-Shift-Improve model has been suggested as a more appropriate conceptual framework towards tackling mobility and transport emission issues in Africa. There is a need for integrated energy, land use and mobility planning, demand side targeting and management, and a shift to more efficient modes and technologies, including electric mobility. Land use and transport infrastructure developments need to be optimised to ensure that the transport system caters to different modes of transportation, including mass transit and non-motorised transport. It is also critical to integrate the informal mobility sector, where public transit often takes place.

Huge investments in infrastructure are required to shift transport demand to more efficient modes (mass transit) and technologies including e-vehicles. In many African cities, public transport is predominantly or entirely provided by the private sector. The private sector can bring new technologies and service models to the transport industry and provide financing to test and scale new ideas, when government resources are limited. Therefore, policies and initiatives that promote public-private-partnerships need to be put in place to capitalize on the potential role of the private sector towards sustainable mobility.

The potential of electric vehicle adoption is significant in Africa. However, strong signals from governments (in the form of supply side mandates) and policy incentives are lacking to facilitate electric vehicle adoption in many African countries. There is also job creation potential in electric vehicle adoption and policies should highlight this. There are already some promising cases of local e-vehicle assembly in Africa ranging from two-wheelers to small private vehicles. However, lack of awareness of options to electrify, low market demand, and lack of access to finance and incentives are considered to be some of the major challenges towards wider adaptation of e-mobility in Africa.

### Recommendations for the IAP-NASAC Study

There are several efforts and initiatives across Africa on most of the issues. Some countries and cities are already ahead in formulating relevant policies, regulations, and specific interventions at different scales. However, from the broader African context, the progress and initiatives on decarbonisation of transport at the national and local scale are either in early stages or non-existent, despite evidence of fast growing contribution of emissions from the transport and mobility sector.

There is much to be learned from the impactful transport interventions at the national and regional levels across Africa (e.g. used vehicle bans, supply-side mandates, clean air policies, etc.). These initiatives, along with those implemented at the city level, could be analyzed and synthesized in an integrated and holistic manner to serve as relevant references with better regional context during the planning and implementation of similar initiatives.

The selection of the study's focal cities should be based on a carefully selected set of criteria that may include the existence and progress of transport decarbonisation initiatives, opportunities for lessons learned, and representation of different regions and demographics of Africa.

In the specific focal cities and identified cases, the study may also assess the progress, success, and performance of the initiatives since implementation, and identify the challenges faced, measures taken and lessons learnt throughout the planning, implementation and operation.

Based on the outcome of the presentations and discussions during the workshop, the following major areas of focus are recommended as potential focus areas for the IAP-NASAC study:

- **Vehicle and Fuel Standards** – shift to cleaner fuels and limit import of polluting secondhand vehicles. A potential focal country is Nigeria, where such standards are already adopted. UNEP may advise on other focal countries where different approaches to used vehicle bans have been implemented.
- **Electric vehicles** – focusing on opportunities (including regulatory policy options) for leapfrogging to e-vehicle technologies (2 & 3-wheelers, mini-buses, mass transport, freight) charging and other infrastructure needs, sustainable energy sources, investment opportunities (private sector, development banks, DFIs, and PPPs) and financing, frameworks and opportunities to promote local manufacturing, spare parts and maintenance, conducive policy framework, building local technical capacity, scaling-up of e-mobility pilots. Potential focal cities/countries are:
  - Kenya, where there is a National Level Partnership in which the Government of Kenya is leading the scaling-up of electric mobility assembly/manufacturing through PPP (goal to increase electric 2-3 wheelers by 15% over 5 years)
  - Kampala, where there is an ongoing e-mobility PPP pilot focusing on motorcycles
  - Cairo, where the World Bank is financing e- bus design and procurement
- **Walking and cycling** – NMT policies and strategies and promotion of walking and cycling (including e-bikes) through inclusive and complete street designs. Addis Ababa and Dar es Salaam are potential focal cities where a number of initiatives and best practices are ongoing on NMT (strategy, design standards and guidelines, infrastructure, pilots, promotion).
- **Mass & public transport** - Policies and strategies that promote the transition/shift to mass transit, investment opportunities and PPP potentials, and shift to electric buses and trains, and integrated Urban and Mobility Plans with emphasis on Mass transit. The following are potential focal cities:
  - Lagos, where there is an ongoing soot-free bus project
  - Dar es Salaam's BRT system
- **Informal Transit** – Policy and regulatory frameworks to formalize the informal transit sector, re-defining their role and integration within the overall urban mobility context, and policy pathways to electrifying the fleet. Potential focal cities are Kampala and Nairobi where small scale research projects are available where companies or universities are transitioning minibuses or taxis to electric vehicles

Overall, the study may address cross-cutting issues of policies, institutional and technical capacity, strategies, technologies, financing, and social considerations. It could follow a focal city/country approach for each of the potential areas by identifying cities/countries that have ongoing or implemented initiative in place that can be used as a case study.

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### About IAP and NASAC

**The InterAcademy Partnership (IAP)** is the global network of over 140 academies of science, engineering and medicine. With its four regional networks – in Africa (the Network of African Science Academies, NASAC), the Americas (the InterAmerican Network of Academies of Sciences, IANAS), Asia (the Association of Academies and Societies of Sciences in Asia, AASSA) and Europe (the European Academies Science Advisory Council, EASAC) – IAP provides a platform for mobilizing regional and national expertise on wide-ranging issues of global importance, and for facilitating cooperation with other key stakeholders and potential partners. More information is available at [www.interacademies.org](http://www.interacademies.org).

**The Network of African Science Academies (NASAC)** is a network of 28 merit-based national academies in Africa. NASAC's main objective is to bring together science academies and facilitate discussions on the scientific aspects of challenges of common concern, so as to make common statements and provide science-informed advice on major issues relevant to Africa and to provide mutual support to member Academies. Additionally, NASAC also strives to create awareness on the value of science academies to social and developmental policy- or decision-making. To this end, NASAC works with scientists to establish academies in countries where none exist. The secretariat of NASAC is based in Nairobi, Kenya. More information is available at [www.nasaonline.org](http://www.nasaonline.org).



