



DECARBONIZATION OF TRANSPORT IN AFRICA

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ABOUT NASAC

- NASAC is an independent consortium of African science academies, whose main goal is to offer authoritative **credible advice for policy formulation** towards economic, social and cultural development on the continent.
- The Network of African Science Academies (NASAC) is a network of 29 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, economic 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.



INTRODUCTION TO DECARBONIZATION

- Decarbonization refers to the removal or reduction of carbon dioxide (CO₂) output into the atmosphere. Decarbonization is achieved by switching to usage of low carbon energy sources.
- Climate change adaptation refers adjustments in natural or human systems in response to actual or expected climate change stimuli or their effects, which moderates harm or exploits beneficial opportunities. It refers to changes in processes, practices and structures to moderate potential damages or to benefit from opportunities associated with climate change.



INTRODUCTION TO DECARBONIZATION

- Africa is a large and highly diverse continent with different people, histories, climates and environments. **Hence there is need to offer an integrated expert voice to guide effective policy responses for climate change adaptation, from the national to continental scales.**
- Because the transport sector represents a significant portion of global emissions, developing strategies to work toward the deep decarbonisation of the transport sector will be crucial for meeting the goals of the Paris Agreement.



HIGHLIGHTS ON THE DECARBONIZATION OF ROAD TRANSPORT IN AFRICA

1. **Governments** harnessing economic, environmental and social benefits
2. Accelerate **electric vehicle adoption** consistent with national climate goals
3. Planning and urban design to drive **transformation** in transport sector
4. **Best solutions** for rural areas, and for maintaining rural-urban connectivity in an environmentally sustainable manner
5. **Lessons learnt** regionally and global best practices
6. Increase in **utilization** of non-motorized transport
7. **Incentives** towards informal bus networks to use electric vehicles
8. **Regulatory mechanisms** to promote investments in low carbon transport
9. Local vehicle **manufacturing** to support long term vision for sustainable transportation



DECARBONIZATION OF ROAD TRANSPORT IN AFRICA

- Transportation has the highest reliance on fossil fuels of any sector, with road transportation accounting for the largest share.
- To address this, there is need to adopt the ongoing wave of innovation which will open a range of exciting new possibilities for the emerging mobility ecosystem.
- A cluster of innovative clean technologies is coming together and will have the potential to mitigate some of the unintended costs of road centric paradigm.



AVOID-SHIFT-IMPROVE (ASI) APPROACH

Achievement of a decarbonised transport can be realized through “Avoid-Shift-Improve “(ASI) approach, which aims to:

Avoid focuses on the need to reduce the requirement for motorized travel and trip lengths. This strategy essentially focuses on reducing the overall demand while not affecting the mobility needs of the population. Transport demand management is also an important part of this strategy

Shift seeks to improve the efficiency of individual trips, which requires a modal shift from the most energy-consuming modes (for example private cars, diesel trucks among others) to more environment-friendly modes (e.g., mass transit systems, railways). This shift is required both for passenger and freight movement. One of the pre-requisites for this strategy is the availability of energy-efficient modes, which can provide the same services as existing modes.

Improve focuses on better vehicle and fuel efficiency as well as optimization of the operational efficiency of public transport systems. This strategy also focuses on improving the energy sources powering the transport sector. Within this, approaches such as reducing vehicle weight and shifting to zero-emission vehicles have been considered for vehicles trips that cannot be avoided or shifted to other modes



ROLE OF SCIENCE ACADEMIES IN AFRICA ON CLIMATE ADAPTATION AND RESILIENCE

Informed, Precautionary Policymaking

Science and knowledge are critically important to enable society to understand and respond to threats posed by climate change. Priorities for the agenda for adaptation governance need to be driven and informed by the realities of the regions that are directly affected by climate change.

Integrated Responses: From the Local to International

Climate adaptation strategies must be locally specific, such that they relate to the local environmental context and are sensitive to local cultures and lifestyles, and resources and expertise need to be deployed to facilitate local actions.

Further, most African countries lack a coherent policy framework for climate change adaptation.

Climate Research

It is vital that local research institutes have the necessary support to conduct local research that answers key questions to assist policymakers on culturally and environmentally appropriate climate change adaptation strategies.



ROLE OF SCIENCE ACADEMIES IN AFRICA ON CLIMATE ADAPTATION AND RESILIENCE

Civic Engagement and Education

Enhanced stakeholder engagement provides policy context and increases the likelihood of sustainable solutions on the ground through local buy-in and implementation.

Technologies for Adaptation

Technological and infrastructural investments could range from enhancement of local, existing technologies to transfer of frontier technologies. Investment in scientific and technological infrastructure for a timely acquisition and use of frontier technologies will be critical as well.

Economic Diversification

An overarching climate adaptation strategy is economic diversification, which is particularly effective in the context of short term shocks to prevent conflicts and environmental degradation.

Financing Climate Change Adaptation

Current levels of climate finance directed to sub-Saharan Africa (SSA) are likely to be insufficient to meet the region's demonstrated need for adaptation finance, estimated by the World Bank as at least USD 18 billion per year until 2050. Resource mobilization efforts at regional level should focus on identification and involvement of regional institutions well positioned to provide financial or technical support or both.



KEY RECOMMENDATIONS

- Decarbonization of road transport is possible and beneficial to Africa and will require additional investment in renewable energy sources.
- Decarbonization requires a multi-sectoral approach and substantial investments that must be prioritized.
- While electrification will play a major role in decarbonisation of road transport, African governments must scale up investments in transport infrastructure and systems and promote sustainable transportation modes (including public transport, walking and cycling).
- Several efforts to decarbonise transport are currently ongoing in many countries in Africa which can be leveraged to accelerate progress.
- Decarbonisation of transport in Africa has the potential to spur new industries and create job opportunities that will require investing in skilling and re-skilling the workforce. Local production and assembly of EVs should be promoted.
- Initial steps to decarbonisation can start with governments incentivizing adoption of EVs for private and public use and provide requisite infrastructure and appropriate business models.
- The power system should be re-engineered to support the penetration of charging infrastructure for EVs.
- Promote a common African position on sustainable transport and continental frameworks and guidelines for decarbonization.
- Promote sharing of information and practices on carbon neutral transport systems and raise awareness on benefits and costs of decarbonisation.
- Develop and provide incentives to promote carbon efficient technologies in the transport sector and address relevant political economy issues that will speed up decarbonisation.
- Government should promote investment in improving rural-urban connectivity and enhance rural mobility as part of the transport sector decarbonization agenda.
- Ensure a just transition to a decarbonised transport system that is also efficient, equitable, and socially inclusive.



THANK YOU!

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