



SADC Automobile Futures: Towards Just e-Mobility Transitions

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Executive summary

This policy insight reviews the pathways toward enabling just e-mobility transitions in SADC member states. The future of e-mobility in SADC depends on the prioritisation of e-mobility to the poor and vulnerable, while embracing and adapting to the key driving forces of the electric vehicle revolution (e-volution). Yet the SADC Green Economy Strategy and Action Plan, with its policies that focus specifically on transport and electric vehicles, has seen little progress in implementation by SADC member states.

There is thus a need for a paradigm shift – from monomodal mobility to multimodal mobilities, including micromobility, which should be at the heart of the post-COVID-19 economic response and green recovery plan. This policy insight outlines core constituents of achieving a just regional e-volution. The post-COVID-19 response is a great opportunity to use e-mobility as a catalyst for prioritising the systemic equity of mobility of both urban and marginalised rural communities.

Introduction

The COVID-19 pandemic has wreaked havoc on the automobile industry, with an expected 23% drop in global sales of internal combustion vehicle (ICE) passenger cars. A recovery in sales figures to 2019 levels is only expected in 2025.¹ However, sales of electric vehicles² (EV) are expected to perform better than their ICE counterparts, with a predicted drop of 18% (1.7 million units) in the number of passenger cars.³ While they will be impacted by the pandemic, they are slightly shielded owing to a backlog of orders, a rich offering of new affordable models because of particularly supportive policies in Europe and China, and rising demand for zero-low emission vehicles. Despite a market share of only 3% globally with over 7.2 million EVs, the EV sector is projected to flourish and achieve a market share of 7% by 2023 (5.4 million units).

The fastest-growing EV sector globally is low-speed electric vehicles (LSEVs), or the micromobility⁴ segment, which represents 30% of the global two-wheeler market share. The pandemic and resultant lockdowns have had a serious impact on the public transport sector, with a possible lasting drop in users. This is because of the adoption of physical

1 BloombergNEF, "Electric Vehicle Outlook 2020", <https://about.bnef.com/electric-vehicle-outlook/>.

2 In this policy insight, references to electric vehicles (EVs) include both battery electric vehicles and hydrogen fuel cell electric vehicles, unless specifically stated otherwise. The abbreviation also includes, but is not limited to, road and rail vehicles, surface and underwater vessels, electric aircraft, electric/hydrogen fuel cell unmanned aerial vehicles, electric spacecraft, space rovers, electric cars, electric trolleybuses, electric buses, battery and hydrogen fuel cell electric buses, electric/hydrogen fuel cell trucks, electric bicycles, electric motorcycles, scooters and tuk-tuks, personal transporters, neighbourhood electric vehicles, golf carts, milk floats and forklifts. Off-road vehicles include electrified all-terrain vehicles, tractors and heavy-duty hydrogen fuel cell dump/mining haul trucks.

3 BloombergNEF, "Electric Vehicle Outlook 2020".

4 Micromobility devices include electric bicycles, shared electric bicycles and electric pedal-assisted bicycles or pedal electric cycles (pedelecs), electric motorbikes (ebikes), electric scooters, electric skateboards, electric unicycles and other battery-powered, low-speed vehicles such as small e-rickshaws.

distancing protocols and a preference among users for privately owned or isolated forms of mobility over shared transport. However, the main driver of change in the larger-scale adoption of e-mobility remains government policy, including:

- public procurement programmes;
- financial incentives that reduce the cost of buying an EV;
- tightened fuel-economy standards and regulations on the emission of local pollutants;
- low- and zero-emission vehicle mandates; and,
- various local measures, such as restrictions on the circulation of vehicles based on their pollutant emission performance.⁵

In SADC, South Africa has for many years protected its auto manufacturing industry. Its ICE vehicle production, assembly and export markets represent 57.2% of Africa's total vehicle production.⁶ The industry plays an important role in the South African economy, contributing 6.4% to gross domestic product and accounting for 27.6% of manufacturing output, 15.5% of total exports and 13.1% of total imports in 2019.⁷ It employs 110 250 people in the vehicle and component production sector alone and annually attracts more than ZAR⁸ 10.8 billion (\$655 million) in foreign direct investment.⁹ There are few automobile production activities in the rest of the region. Botswana, Mozambique and Zimbabwe all have attracted investments owing to their proximity to South Africa, but these industries are isolated and insignificant in global terms.¹⁰ The automobile industry is already feeling the effect of the shift to e-mobility in exports as new policies in European and Mercosur¹¹ countries start to come into force.

Many countries have adopted efficiency requirements across all car models, with original equipment manufacturers (OEMs) offsetting high fuel-consuming vehicles with 'greener' models like hybrid vehicles and EVs to compensate for those that are less carbon emission efficient. Recently, South African EV sales¹² have increased substantially, from 58 units in 2018 to 154 in 2019 (28%). While these numbers pale in comparison to the global e-mobility boom, the year-on-year growth demonstrates this market's potential. The National Association of Automobile Manufacturers of South Africa (NAAMSA) and the Department of

5 International Energy Agency, "Global EV Outlook 2020: Entering the Decade of Electric Drive?", <https://www.iea.org/reports/global-ev-outlook-2020>.

6 National Association of Automobile Manufacturers of South Africa, "Automotive Export Manual 2020: Progress on Wheels", <https://www.naamsa.co.za/assets/downloads/AutomotiveExportManual.pdf>.

7 NAAMSA, "Automotive Export Manual 2020".

8 Currency code for the South African rand.

9 NAAMSA, "Automotive Export Manual 2020".

10 Chelsea Markowitz, "The Potential for Regional Value Chains in the Automotive Sector: Can SADC Learn from the ASEAN Experience?" (Occasional Paper 231, South African Institute of International Affairs, Johannesburg, June 17, 2016), <https://saiia.org.za/research/the-potential-for-regional-value-chains-in-the-automotive-sector-can-sadc-learn-from-the-asean-experience/>.

11 Mercosur is an economic and political bloc. Argentina, Brazil, Paraguay, Uruguay and Venezuela (suspended) are full members while Bolivia, Chile, Colombia, Ecuador, Guyana, Peru and Suriname are associate countries.

12 South Africa's petrol hybrid electric vehicle sales in 2019 accounted for 253 units, up from the previous year's 144. NAAMSA, "Automotive Export Manual 2020".

Trade, Industry and Competition are actively working on measures to ensure the evolution of the local auto industry towards e-mobility.

At present the growth of EVs in South Africa is mainly the result of private sector investment in charging infrastructure, such as a national network of charging stations in shopping malls and car parks. There are also community-based peer charging solutions that give access to charging stations and reserve chargers. This accessibility is based on sharing economy principles and community-based platforms where homeowners and businesses connect with EV owners through social media or smartphone apps.¹³ In addition, South African EV sales are propelled by early adopters, fuel efficiency concerns and ecologically conscious drivers, although only high-income earners can afford EVs. A significant shift in supportive policies is needed to make EVs an affordable option for the majority of lower-income earners in SADC countries.

This policy insight reviews the pathways toward enabling just e-mobility transitions in SADC member states.

The future of e-mobility in SADC

Africa has a motorisation rate of only 44 out of 1 000 people, whereas the global average is 180.¹⁴ SADC member states also have a deficit when compared to other African regions. More than half of the region's population do not have cars and many walk unreasonably long distances or make use of unreliable public transport to reach schools, clinics and employment opportunities, or deliver public services. SADC member states must increase regional mobility to ensure better access to essential services for both its public sector workers and its citizens. Demand for vehicles is high owing to long distances in many rural areas, but accessing affordable and reliable transport is out of the reach of most Southern Africans.

The COVID-19 pandemic could drive a change in consumer behaviour towards shared transportation. This might happen if commuters are willing to embrace a modal mix of physically distanced mobility to improve autonomy and flexible decision-making around transport options. Simultaneously, the rise of e-mobility could transform mobility from a preoccupation with 'gigantism'¹⁵ to electric micromobility as it lowers transportation costs

13 Peer charging platforms enable people to rent out their charging points to earn extra income. Smartphone apps like [EV match](#) in the US or the South African start-up [EVCrowdRoute](#) offer conventional charging infrastructure while exploring the viability of peer charging services. Community-based peer charging differs from [Peer-to-Peer Car Charging \(P2C2\)](#), which refers to a developing highly scalable technique for charging EVs on the go with minimal overhead costs. P2C2 allows EVs to share charges with each other. Another developing charging system is Mobile Charging Stations, which are high battery capacity vehicles used to replenish the overall charge in vehicle networks.

14 Prinesha Naidoo, "Africa: The Final Frontier for the Automotive Industry", *Moneyweb*, October 4, 2018, <https://www.moneyweb.co.za/in-depth/africa-focus/africa-the-final-frontier-for-the-automotive-industry/>.

15 Gigantism refers to consumers' preoccupation with oversized vehicles, leading to more emissions, road maintenance and traffic congestion, while it would be more beneficial to use micromobility options for shorter trips, thereby saving time and money while improving air quality.

while avoiding the risk of infection. Given the vast difference between South Africa's auto industry/market and that of the region, it is clear that the advent of e-mobility is still far off for most SADC member states, unless there is an immediate and energised focus on a dramatic shift towards implementing current SADC policy. The global light-duty¹⁶ fleet is rapidly growing, yet light-duty EVs remain unaffordable and impractical for most Southern Africans, given their initial high upfront cost and limited access to charging stations.

The drivers of change that propel or inhibit the SADC e-mobility transition are:

- EVs' achieving price parity with ICE vehicles by the mid-2020s in most segments, depending on SADC member states' policy decisions, but by latest early-2030s;
- availability of cheaper, longer-range and longer-lasting EV batteries;¹⁷
- appetite and capacity to increase purchases of global light-duty vehicles by 10% by 2025, 28% by 2030, and 58% by 2040 (based on existing orders with OEMs);¹⁸
- lower cost of renewable energy;¹⁹
- impact of the global oversupply of crude oils on petrol/diesel consumption and crude oil imports on oil-producing SADC member states;²⁰
- extent, duration and long-term impact of COVID-19 on the transport sector in shifting behaviour, purchasing patterns and access;
- nature of the commitment to improve urban air and noise quality to increase health and productivity outcomes, with a broader spillover on reducing health expenditures;²¹
- the availability of digital infrastructure, resulting in fewer commuters because of teleworking in urban areas;
- an increase in disposable income owing to lower Levelised Costs of Transport²² resulting from cheaper transport;²³
- ability to respond rapidly to an increase in electricity demand;²⁴

16 Light-duty vehicles are classified as passenger cars and light commercial vehicles, including pick-ups and delivery vans.

17 The million-mile battery manufactured by the Chinese company CATL supplies Volkswagen, Toyota and Tesla. The battery runs for 16 years and 1.24 million miles, compared to the current average EV battery's lifespan of around 200 000 miles. Louise Boyle, "Landmark Million-Mile Battery to Power Electric Vehicles Is Ready for Production", *The Independent*, June 10, 2020, <https://www.independent.co.uk/environment/electric-cars-tesla-elon-musk-million-mile-battery-a9559411.html>.

18 BloombergNEF, "Electric Vehicle Outlook 2020".

19 International Renewable Energy Agency, "Scaling up Renewable Energy Deployment in Africa", <https://www.irena.org/africa%20>.

20 Anthony Dane, Dave Wright and Gaylor Montmasson-Clair, "Exploring the Policy Impacts of a Transition to Electric Vehicles in South Africa" (Policy Brief, Trade and Industrial Policy Strategies, Pretoria, 2019), <https://tips.org.za/research-archive/sustainable-growth/green-economy/item/3646-exploring-the-policy-impacts-of-a-transition-to-electric-vehicles-in-south-africa>.

21 Xinyu Liang et al., "Air Quality and Health Benefits from Fleet Electrification in China", *Nature Sustainability* 2, no. 10 (2019), doi:10.1038/s41893-019-0398-8.

22 LCOT is the discounted lifetime cost of ownership and use of a transport asset, converted into an equivalent unit of cost of transport in rands per passenger kilometre or tonne kilometre.

23 Dane, Wright and Montmasson-Clair, "Exploring the Policy Impacts".

24 IEA, "Global EV Outlook 2020".

- second or more waves of the pandemic;
- lasting impact on the pace of economic recovery;
- extent of consumer and corporate spending;
- policies that support a green recovery and EV deployment or prop up existing ICE manufacturing;
- structural impacts of possible government incentives to maintain local automotive production;
- willingness to stop importing second-hand ICE vehicles that no longer meet carbon emission targets in their home markets;
- demand for certain types of battery materials;
- speed of replacement of government and private sector fleets with EVs;
- EV battery capacity available for controlled or vehicle-to-grid charging; and
- the impact of vehicle and battery manufacturing on the overall EV lifecycle greenhouse gas (GHG) emissions.

Ensuring regional e-mobility integration and collaboration

Apart from South Africa only Namibia and Mauritius have invested in the roll-out of the necessary charging infrastructure for EVs, and only Mauritius offers incentives for EV adoption. A full transition to EV adoption in Southern Africa is only possible if the entire region adopts measures that facilitate e-mobility. The adoption of e-mobility is also changing the role of oil, gas and utility companies. Some oil and gas companies are changing their business models from participating in decarbonisation efforts to adopting renewable energy-orientated business models. Utilities are expanding their energy generation and distribution options, with some adopting direct interaction with consumers. Similarly, the automotive industry at large has changed from transportation to mobility companies; a shift from fragmented single-mode services like bus and rail to a mobility ecosystem of services that move people into, out of and around cities. Regardless of the impact of e-mobility globally, automakers and SADC member states are cautiously considering their e-mobility strategy. While Nissan, BMW and Jaguar Land Rover already have a Southern African market presence with their respective EV offerings, Volkswagen indicated it would enter its EV competitor by late 2021. It remains to be seen what the impact will be on the established Southern African OEM ICE vehicle- and parts-manufacturing sector. A just e-mobility transition is needed. National and regional automaker bodies like NAAMSA and the Association of African Automotive Manufacturers (AAAM) are calling for a coherent and coordinated policy environment aimed at driving EV adoption and penetration.

The implications of the e-mobility revolution are immense, considering that the region has large portions of the world's strategic EV minerals and metals.²⁵ This supposedly gives SADC member states global collective bargaining power, which in turn should enable positive political economy and social-ecological investments and advantages. However, drastically curbing the SADC carbon-based ICE vehicle manufacturing and second-hand sector without a clear just transition path, targets and milestones seems both unwise and unlikely, owing to government indecision and a lack of policy certainty.²⁶ Despite early indications that South Africa is willing to legislate a Green Economy strategy for transport through the Green Transport Strategy (GTS),²⁷ little has happened thus far in terms of political action.

The South African Department of Minerals, Resources and Energy should become a member of the International Energy Agency's (IEA) Electric Vehicles Initiative, along with other interested SADC member states, to support the implementation of the GTS.²⁸

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Regionally, the SADC Green Economy Strategy and Action Plan²⁹ has three pathways on green transport promotion:

- investing in climate-resilient transport infrastructure and relocating infrastructure exposed to climate change impacts (eg, because of sea-level rise or increased risk of flooding);
- establishing green public transport networks and multimodal transport; and
- encouraging regional trade for (energy-efficient) low-emitting vehicles.

It is unclear what progress has been made with the short-term action items that expire this year, such as establishing public-private sector models to invest in and operate

25 Deon Cloete, "SADC Futures of Mining: Implications of Large-Scale EV Adoption" (Policy Insight 94, SALLA, Johannesburg, October 2020).

26 South Africa, through research done by TIPS and Change Pathways for the DTIC and NAAMSA, has taken steps toward just transition pathways and policy development toward e-mobility targets and milestones.

27 South Africa, Department of Transport, "Green Transport Strategy for South Africa: (2018-2050)", https://www.transport.gov.za/documents/11623/89294/Green_Transport_Strategy_2018_2050_onlineversion.pdf/71e19f1d-259e-4c55-9b27-30db418f105a.

28 Fifteen countries are participating in the EVI: Canada, Chile, China, Finland, France, Germany, India, Japan, the Netherlands, New Zealand, Norway, Poland, Portugal, Sweden and the UK. IEA, "Electric Vehicles Initiative", <https://www.iea.org/areas-of-work/programmes-and-partnerships/electric-vehicles-initiative>.

29 SADC, "SADC Green Economy Strategy and Action Plan", https://www.sadc.int/index.php/download_file/view/7643/280/.

green transport systems; increasing access to public transport, especially for the poor and marginalised; doing assessment studies for multimodal transport; putting in place incentives to support regional trade in low-emitting vehicles, eg, through custom tax rebates or exemptions; and reducing (or reforming) harmful subsidies on gasoline and diesel (based on assessments of the economic implications of the reallocation of the subsidies).

The recently approved SADC Vision 2050³⁰ linked to the Regional Indicative Strategic Development Plan (RISDP) 2020–30 aims to³¹

develop innovation and technological capabilities of the region and ensure that they are conducive for the permeation of the fourth industrial revolution, which will facilitate industrial development, as well as the development of regional infrastructure and social and human capital.

The SADC Secretariat notes that infrastructure development needs to be particularly sensitive to technological changes and innovation. As the RISDP 2020–30 states, technology-led growth will be the dominant form of growth moving towards 2050. Without this class of infrastructure being in place in SADC, it cannot benefit from the coming wave of technology-led growth.

The private sector should leverage the SADC Green Economy Strategy and Action Plan and the SADC RIDSP 2020–30 to support and collaborate with the Green Economy Coalition and the African Forum on Green Economy, thereby enabling systems strengthening of a just e-mobility transition

The private sector should leverage the SADC Green Economy Strategy and Action Plan and the SADC RIDSP 2020–30 to support and collaborate with the Green Economy Coalition³² and the African Forum on Green Economy,³³ thereby enabling systems strengthening of a just e-mobility transition.³⁴

30 SADC, "SADC Vision 2050", https://imanidevelopment.com/wp-content/uploads/2020/03/4th-Draft_SADC-Vision-2050.pdf.

31 SADC, "Regional Indicative Strategic Development Plan (RISDP) 2020–30", <https://www.sadc.int/about-sadc/overview/strategic-pl/regional-indicative-strategic-development-plan/>.

32 The Green Economy Coalition is the world's largest alliance for a transition to green and fair economies. See Green Economy Coalition, "Green Economy Coalition: A Global Movement for Green and Fair Economies", <https://www.greeneconomycoalition.org/>.

33 The African Forum is part of the Economics for Nature programme, a six-year project led by the Green Economy Coalition and its partners the Natural Capital Coalition, the Green Growth Knowledge Platform, WWF France and Finance Watch. The aim of Economics for Nature is to support development, economic and spatial planning processes to internalise the many values of nature. African Forum on Green Economy, "Investing in Natural Capital for a Resilient Africa", <https://www.africanforumongreen-economy.com/>.

34 A just e-mobility transition advocates for systemic change and innovations in finance, economic, spatial planning processes that drive systemic instability and social inequality, with the goal to integrate the SDGs into strategies and operations by changing what is measured, and designing locally relevant campaigns for building green economies from the bottom up.

Implementation is severely hampered by member states' unwillingness to actualise these strategies regionally and nationally. Multilateral capacity-building initiatives like UN Environment's electric mobility programme – which supports the shift from fossil fuels to EVs in developing countries – should be incorporated by SADC countries.

SADC members should also endorse the creation of a SADC e-Mobility Alliance hosted by the SADC Business Council and supported by the World Economic Forum's (WEF) Global New Mobility Coalition.³⁵

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The SADC e-Mobility Alliance should develop pilot initiatives based on the IEA's global EV pilot city programme, which 'aims to create a global platform to facilitate communications and cooperation among leading global cities interested in stimulating and increasing the uptake of electric mobility within their jurisdictions'.³⁶

Electric micromobility as catalyst for regional systemic equity

Mobility is a fundamental human need and central to improving societal and social opportunities for the poor and vulnerable. It is also an essential enabler of prosperity by allowing greater access to economic opportunities.³⁷ However, Southern Africa is trapped in an unsustainable mobility paradigm.

Mostly women and children have to walk unreasonable distances to get food, water or education. In addition, car use in SADC countries results in high death rates through road accidents, air pollution and climate change connected to GHG emissions. It also places heavy financial burdens on the region through urban congestion and infrastructure development and maintenance. Transport in SADC member states is limited to only a few

35 World Economic Forum, "Global New Mobility Coalition", <https://www.weforum.org/projects/global-new-mobility-coali%ED%AF%80%ED%B0%8Fon>.

36 IEA, "EVI Global EV Pilot City Programme", <https://www.iea.org/areas-of-work/programmes-and-partnerships/evi-global-ev-pilot-city-programme>.

37 WEF, "Strategic Intelligence: Future of Mobility", <https://intelligence.weforum.org/topics/a1Gb00000038poVEAQ?tab=publications>.

modes, including bikes, personal vehicles and public/private transportation. This is known as monomodal mobility.

The paradigm shift that SADC member states need is to embrace multimodal mobility in its various fluid forms. These include micro-shared mobility, which gives marginalised communities in both rural and urban areas last-mile, affordable and environmentally friendly transportation. The shift is from gigantism to increased personalisation of contextually appropriate mobility, rather than the binary choice many Southern Africans face between expensive private vehicles or affordable shared minibus taxis (single mode of travel by car). The paradigm shift includes on-road and off-road multimodal mobility solutions, coupled with various Mobility-as-a-Service (MaaS)³⁸ offerings beyond personal ownership or taxis. Globally, transport systems are rapidly adopting these multimodal mobility mixes. New mobility technologies (including mobile technologies) enable innovative business models, and policymakers have shaped these to foster mobility that is smarter, cleaner and more inclusive.

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The WEF argues that 'e-mobility is at the heart of the green recovery and remains one of the best solutions for combatting the twin challenges of the economic and climate crises'.³⁹ It also forecasts that 1.1 million jobs will be created in the e-mobility sector across the EU by 2030. With increasing urbanisation in SADC countries, people are experiencing increasingly gridlocked highways, smog, delays and higher fuel consumption, leading to frustrated taxi drivers and commuters. Micromobility integrates people with public transit systems, thereby reducing reliance on private cars while making optimal use of existing space by 'right-sizing' the vehicle. It has the added benefits of reducing GHG emissions, noise pollution and travel costs, and increasing levels of travel enjoyment.

38 MaaS is a mobility distribution model that delivers users' transport needs through a single interface. It combines different transport modes to offer a tailored mobility package, like a monthly mobile phone contract. Peraphan Jittrapirom et al., "Mobility as a Service: A Critical Review of Definitions, Assessments of Schemes, and Key Challenges", *Urban Planning* 2, no. 2 (2017), doi:10.17645/up.v2i2.931, <https://repository.uibn.ru.nl/handle/2066/174112>.

39 Vesa Laisi, "Why E-Mobility Must Be at the Heart of the Green Recovery", WEF, June 24, 2020, <https://www.weforum.org/agenda/2020/06/e-mobility-heart-of-green-recovery/>.

Rural mobility is a significant element in raising incomes and enabling access to bigger markets. Smallholder farmers are critical to the success of a growing Southern African agricultural sector yet appear to remain neglected. Studies⁴⁰ indicate that more than half of the untapped potential for agri-cultivation in sub-Saharan Africa is located more than six hours from a major market, and less than 40% of rural Africans live within 2km of an all-season road – by far the lowest level of rural accessibility in the developing world. This means rural farmers face a huge cost in both time and money to take their goods to market. E-mobility supports last-mile transportation for marginalised communities, and so transforms the way people live and work. This is possible through the introduction of small, affordable off-road electric bicycles and tricycles, coupled to decentralised off-grid solar charging infrastructure. The introduction of micromobility to small-scale farmers and businesses has helped them to reach consumers more effectively and given them access to the services they need.

The Mobility for Africa⁴¹ Initiative shows that LSEVs can counter the elite EV ownership conundrum in Southern Africa.

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While e-mobility reduces the time and cost of moving goods and people, the introduction of e-tricycles, for example, can also address the rural isolation and gender inequality issues facing women. This will help them gain independence and reduce workloads.⁴² These tricycles have a proven track record in China and are easy to use and to transport children. E-tricycles are better for the environment than petrol-powered options and have excellent agility and durability. While much of the infrastructure needed to develop trade and industry in Southern Africa exists, there has to be an equal emphasis on increasing rural mobility. The e-mobility LSEVs, with options like e-tricycles and rural solar charging stations, are a gamechanger in overcoming barriers to development and economic opportunities. Micromobility provides immediate and affordable transportation in townships or rural areas. This gives people access to health, education, food security and income-generation opportunities, while allowing government officials to serve marginalised communities.

40 African Monitor, "Rural Infrastructure in Africa: Unlocking the African Moment" (Paper 1, African Monitor, Cape Town, 2012), <http://www.africanmonitor.org/wp-content/uploads/2017/04/Rural-Infrastructure-In-Africa.pdf>.

41 Mobility for Africa, "About Us", <https://www.mobilityforafrica.com/about>.

42 International Forum for Rural Transport and Development, "Gender Mainstreaming in Rural Transport: An Analysis of Policies, Practices, Impacts and Monitoring Processes", <http://ifrtd.org/index.php/resources/new-resources/item/25-gender-mainstreaming-in-rural-transport-an-analysis-of-policies-practices-impacts-and-monitoring-processes>.

In contrast to the push for autonomous vehicles in the Global North, micromobility proponents argue that ‘in the long-term, we need more car-less drivers and not necessarily driver-less cars in congested urban and remote rural areas in southern Africa. Mobility plays a crucial role in poverty alleviation.’⁴³ e-Mobility also opens the possibilities of a Seamless Integrated Mobility System (SIMSystem),⁴⁴ which promotes interoperability between modes of transportation to avoid a proliferation of potentially uncoordinated or conflicting investments, assets, standards, rules and technologies.

Towards a just regional e-revolution

The world’s largest EV manufacturer, BYD,⁴⁵ claims that ‘the world is on the cusp of a permanent shift to electric mobility’.⁴⁶ Although many experts are sceptical of the imminent demise of ICE vehicles, the question is whether South and Southern Africa will be left behind by the rest of the world, or whether they will embrace the coming electric mobility revolution. SADC member states should muster the courage to reinvent the whole industrial regional value chain fed by its oil and coal dependency to create conditions that enable a just e-mobility transition. SADC has the opportunity window to develop a home-grown, unique version of a regional ‘Green Deal’ that re-imagines the current pandemic, economic downturn and impending climate crisis to use critical challenges embedded in the e-mobility debate as leverage points to enable systemic change and innovation.

The creation of African continental transport routes is imperative to grow internal trade and commerce. Mechanisms like the Chinese-led Belt and Road Initiative⁴⁷ make a useful contribution to the development of highways and high-speed railways that are materially changing mobility in some Southern African countries. Although roads are essential within the overall scheme of a just e-revolution and must be regionally compatible and integrated, they are not the sole solution to Southern Africa’s mobility problems. Despite great investments in building roads, many rural areas still depend on gravel roads that are not serviced by regular and reliable transport. Hence, the need for off-road micromobility solutions. What is lacking is institutions and leaders with the power and authority to drive a just regional e-revolution and make it a priority area for investment.

One of the most significant impediments facing automobile manufacturers in the region is the dominance of second-hand car imports in all its members except for the SACU states.

43 Gert Schoeman, Zero.e Micromobility, interview by Deon Cloete, July 6, 2020.

44 SIMSystem is a “system of systems” that moves people and goods more efficiently by creating interoperability across physical assets like cars and buses, digital technologies like dynamic pricing and shared data exchanges, and the governance structures, standards and rules by which they operate.

45 BYD is an EV OEM based in China and listed on the Hong Kong and Shenzhen Stock Exchanges. See BYD, “About BYD”, <http://www.byd.com/en/CompanyIntro.html>.

46 Matthew Campbell and Tian Ying, “The World’s Biggest Electric Vehicle Company Looks Nothing Like Tesla”, *Bloomberg Businessweek*, April 16, 2019, <https://www.bloomberg.com/news/features/2019-04-16/the-world-s-biggest-electric-vehicle-company-looks-nothing-like-tesla>.

47 People’s Republic of China, “The Belt and Road Initiative”, <http://english.www.gov.cn/beltAndRoad/>.

Second-hand vehicle sales seem to satisfy the largest African car demand.⁴⁸ Ironically, this is also the main reason why South African ICE vehicle exports are mostly focused on the global rather than the regional market. The EV market faces a similar uphill battle in the SADC region with no real champion. Whereas there are clear benefits in terms of securing greater mobility for SADC citizens through importing second-hand vehicles, given the low motorisation rate, the trade-off is locking the region into old, outdated vehicle technologies that are not fit for use in city centres owing to high emissions, while the rest of the world moves ahead. The current medium-term SADC policy is to harmonise regulations on vehicle emissions and vehicle import bans. However, the policy position is unclear on what this means for EVs.

SADC member states should propose that second-hand imports of ICE vehicles face higher import duties and taxes, with much lower duties and tax breaks for EV imports and regional e-mobility trade.

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The current rates of environmental degradation, unsustainable exploitation of resources and pollution are driving new approaches to production, such as the circular economy. The UN Industrial Development Organization (UNIDO) defines the circular economy as 'a new way of creating value, and ultimately prosperity, through extending product lifespan and relocating waste from the end of the supply chain to the beginning – in effect, using resources more efficiently by using them more than once'.⁴⁹

The UNIDO report outlines important circular strategies and principles, such as⁵⁰

- using recyclable, low-impact materials;
- designing for disassembly;
- creating smart systems for monitoring and tracking;
- ensuring lifetime extension to allow continued functionality;
- revising and upgrading parts to support continued functionality;

48 Reuters, "Watch: The Battle for Africa's Giant Car Market", *Wheels24*, April 15, 2019, https://www.wheels24.co.za/News/Industry_News/watch-the-battle-for-africas-giant-car-market-20190414

49 UN Industrial Development Organization, "Circular Economy", <https://www.unido.org/our-focus-cross-cutting-services/circular-economy>

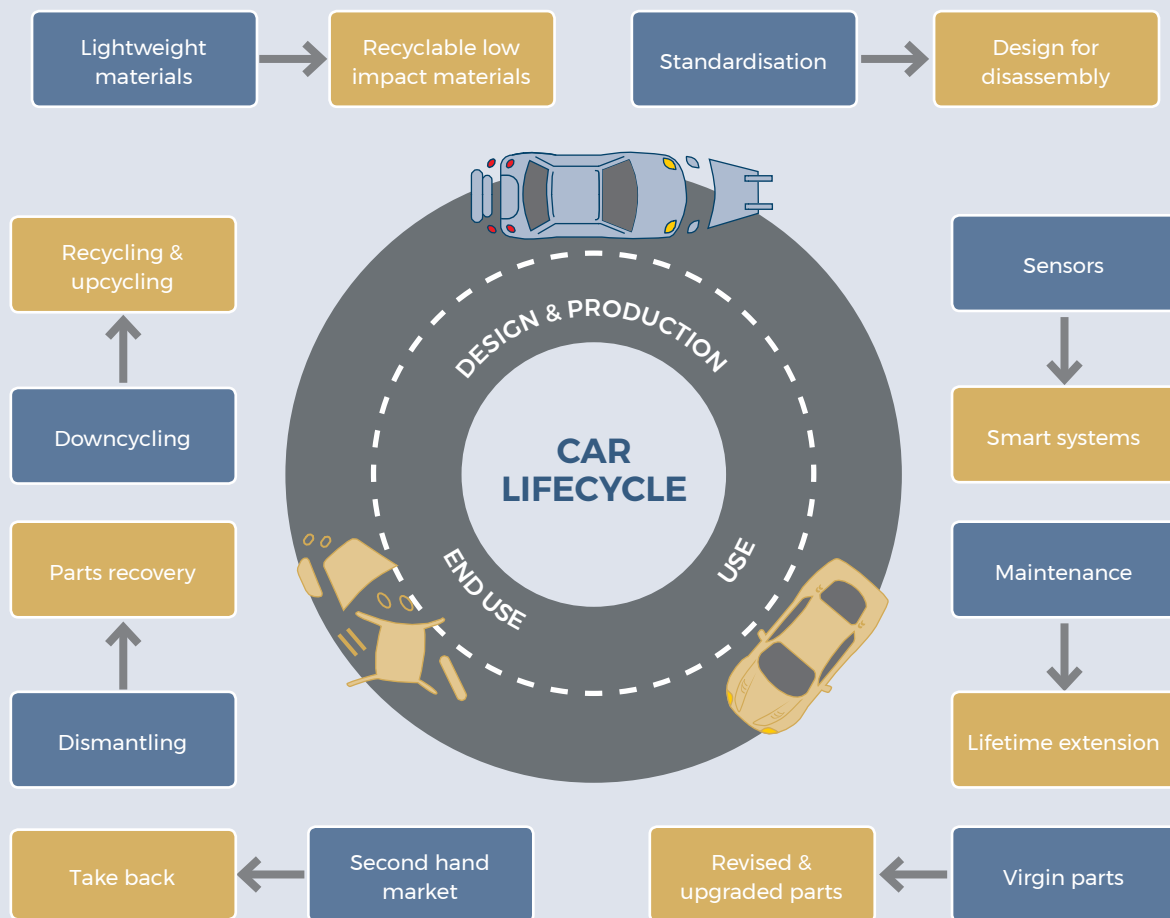
50 UNIDO, "Circular Economy".

- taking back/capturing the second-hand value of end-of-use car parts;
- ensuring parts recovery harvesting; and
- recycling and upcycling for new innovative purposes.

SADC member states, in collaboration with the SADC Business Council and UNIDO, should develop regional circular economy automotive policies

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Figure 1 The circular automobile lifecycle



Source: Circle Economy, "How Can Car Component Suppliers Become Future-Proof by Applying Circular Economy Principles?", <https://www.circle-economy.com/thecircularcar>

Electrifying Southern Africa's mobility and beyond

The creation of new alternatives to the traditional automobile industry is crucial to enable a just e-revolution. The imperative for SADC member states is to ensure all the opportunities arising through e-mobility are exploited. E-mobility should be viewed as a key catalyst at the heart of the green transition and economic recovery. The e-mobility transition is a regional problem and requires regional implementable solutions, despite possible competing interests. It is important to build capacity in institutions and among leaders to muster the courage for an alternative vision of mobility. The COVID-19-driven crisis is an opportunity to embrace a paradigm shift about how we think about the future of mobility, from monomodal to multimodal mobilities, especially off-grid micromobility LSEVs. The ever-increasing inclusion of circular economy practices in the manufacturing space provides major opportunities for innovation. This not only helps to transform the auto industry but also pivots it away from wasteful manufacturing to greener modes of production. The shift to cleaner and sustainable production also responds to the pull factors of environmentally conscious, digital technology service-orientated consumers. A just regional e-revolution will contain a fluid understanding of mobility while prioritising investments directly benefitting marginalised Southern African communities living in urban townships and rural areas.

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Mobility for Africa

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