Popular Transport of Goods in Africa

Reality, Needs, and Opportunities for Climate Action

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CLIMATE CENTER

GlobalNetwork for PopularTransportation

SHARED-USE MOBILITY CENTER

Even though the popular (aka informal) transport sector moves millions of people and goods on a daily basis, particularly in cities in the Global South, research, data and resources regarding the scale of the sector, the types of vehicles used for mobilizing people and goods, their contribution and potential for GHG emission reduction, how many people it employs, and their social, environmental and economic impact is scarce and often non existent. An emerging field of research around popular passenger transport has gained strength and support in recent years, however, this has not happened for goods transport services. The informal character of these services often results in them suffering from haphazard, discriminatory policies and regulations, or at best, makes them invisible, ignored and not taken into consideration when planning or developing solutions to strengthen transport planning, logistics and supply chain management. Ignoring the potential of these services negatively impacts millions of people, who use and/or operate these services with little or no support from the government or private investors.

The Kühne Climate Center and the Global Network on Popular Transportation therefore agreed that it is essential to strengthen the creation of knowledge regarding informality in the goods transport sector and include popular transport in the conversation on how to transition the field of logistics and supply chain management in a way that is inclusive, sustainable and leaves no one behind. This knowledge brief serves as an exploration of the topic in the regional context in Africa.

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1 Introduction

Africa, with its growing integration into technology-intensive industries, abundant raw materials for renewable energy markets, a young, dynamic workforce, and integration through the African Continental Free Trade Area (AfCFTA)[1–4], presents a significant potential to emerge as a major force in global supply chains. To capitalize on this potential, there is an urgent need for enhanced efficiency and sustainable growth within Africa's logistics sector. However, there's a specific element within this sector that is particularly important for a just transition and is often overlooked in global logistics research: informality[5, 6].

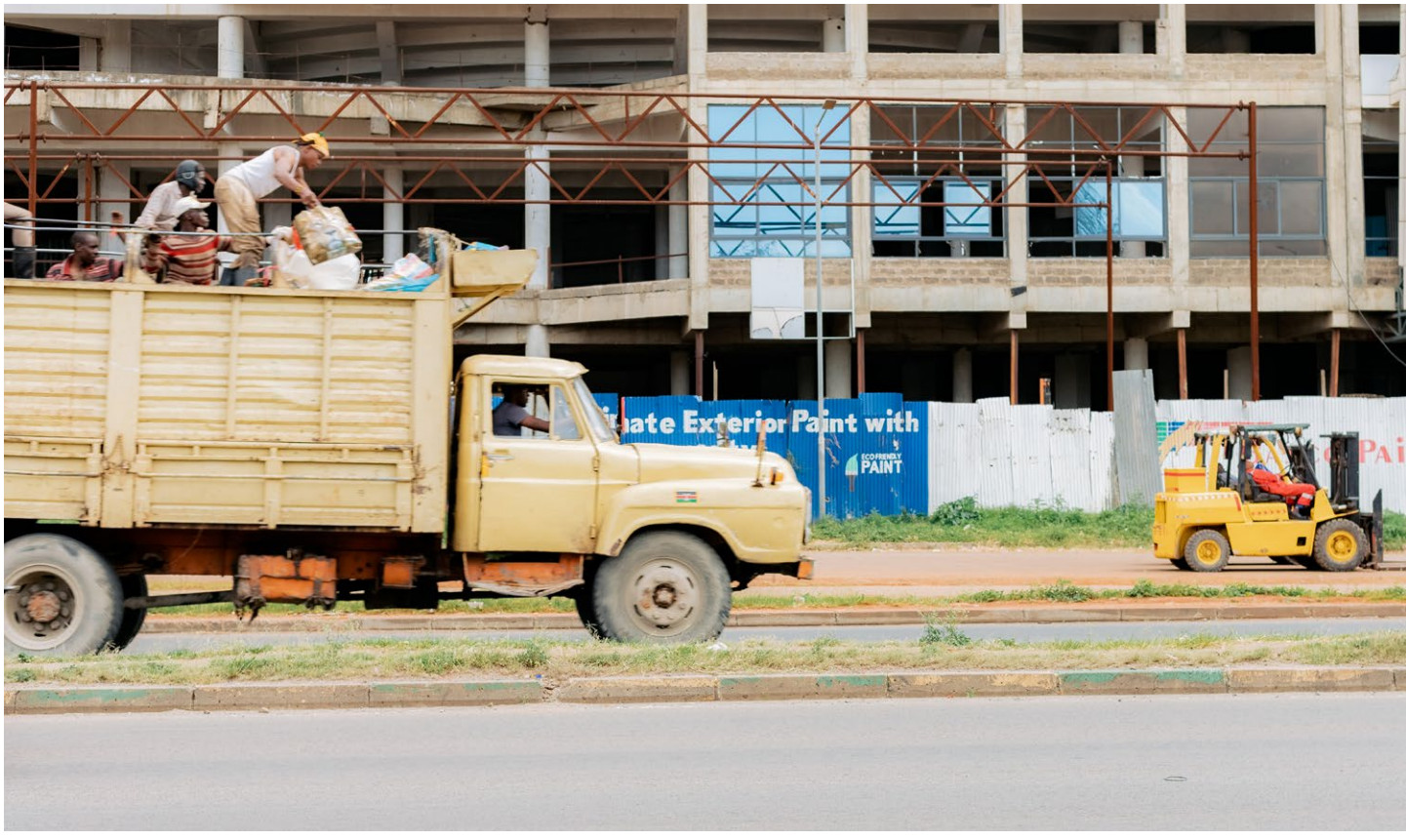
This knowledge brief delves into the informality within the goods transport sector in Africa. At the time of publication, and due to the informal nature of the sector, there is a significant lack of information on its scale or characteristics. However, the fact that 86% of employment in Africa is considered informa[7] sheds some light on the potential dimensions of informality in this sector as well.

This knowledge brief synthesizes existing information on the subject to provide a better understanding of the scale, characteristics, and challenges of informality in the goods transport sector while at the same time highlighting the significant role these services play in Africa and their importance for sustainable development. The brief concludes with actionable recommendations for integrating these services into broader efforts to improve logistics efficiency and reduce environmental impacts, ensuring that informal actors in the transport of goods are not left behind in efforts to decarbonize and better adapt to the climate crisis.

2 A look at popular transport of goods

We propose using the term “popular transport of goods” to refer to the informal process of moving goods. This term describes the smaller-scale and often individual provision of freight, logistics, and delivery services from person to person, which is not documented in official statistics. In contrast to formal, larger-scale corporate operations. Examples of 'popular transport of goods' include local trucking services, motorcycle couriers, and individual drivers transporting goods from one market to another. This sector is “popular” because it often arises organically within communities, filling a gap between the operators' and customers' offers and demands. This terminology aims to convey a more positive and community-oriented perspective compared to the term “informal”, which implies that the sector is inferior to “formal” systems.

Popular transport of goods services is characterized by a variety of operators and vehicles, many of which are not officially licensed but which provide accessible delivery and logistics solutions to people every day. The variety of vehicles used for these services is primarily a function of the nature of the trips to be made, the distances to be covered, and the characteristics of the products to be delivered, such as the type, size, and weight. Table 1 provides examples of vehicles used and common names, uses, and characteristics in their operations.

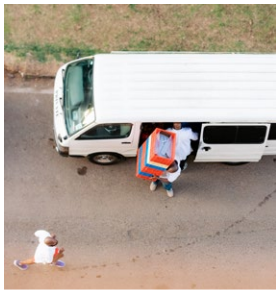


2 A look at popular transport of goods

Popular transport modes for goods in Africa

Vehicle type	Example of local name	Common uses	Characteristics	Examples
Wheeled carts	Charette for Chad, Burkina Faso and Cameroon, Mkokoteni for Kenya, Tanzania	Transport Market goods (especially in rural contexts) and as a feeder to deliver products to matatus [Interviewee 3].	It can carry up to 1 ton [8]. Used for short distances, for instance, carrying things between boda boda stages and cross docks [Interviewee 3]. They allow for route flexibility and accessibility even in remote rural areas. The cost per ton-kilometer is lower than other alternatives due to low labor costs [8].	
Bicycles	Cyclo-Pousse in Madagascar	Transport market goods and last-mile delivery.	They are used for last-mile delivery services. The costs are also low in comparison to other motorized vehicles.	
Motorcycles	Boda bodas in Kenya, Uganda and Tanzania, and Abamotari in Rwanda	Transport market goods, last-mile delivery, and running errands.	Flexibility and high reach, even in areas of difficult access. They are used to carry a diversity of products. They operate via "stages" or areas where drivers wait for clients. Drivers can also be contacted directly or using apps [Interviewee 1]. They often serve as both passenger transport services and delivery services; 20% of boda boda rides are for transporting passengers with goods, and 11% are solely dedicated to deliveries [Interviewee 1].	
Auto Rickshaws	Tuktuk in Chad, Keke in Nigeria Guta (cargo 3W) in Kenya and Tanzania	Transport market goods, last-mile delivery, and errands.	They can carry between 100 and 600 kilos [9]. They are used to carry types of cargo that might be dangerous or too big to carry on a motorcycle [Interviewee 5]. They are usually more expensive than boda boda [Interviewee 5].	

2 A look at popular transport of goods

Vehicle type	Example of local name	Common uses	Characteristics	Examples
Minibusses	Trotros in Ghana Minibus taxi in South Africa	Provides passenger and goods transportation in urban and rural areas. They are commonly used by small-scale farmers and traders from the countryside to bring their goods to cities.	Useful for longer-distance trips. High accessibility due to combined passenger and goods transportation service.	
Buses	Matatus in Kenya	Transport market goods or personal packages.	Mixed transport of passengers and goods. High loads are possible. Less flexible and convenient than motorcycles and tuk-tuks, depending more on the road condition.	
Trucks or Lorries	Camions in Burkina Faso, Camerron, Chad Cari la mizigo in Tanzania, Kabangali in Uganda and Truck in Zambia	Goods transportation by small-scale farmers and traders coming from the countryside. 3PL companies hire these services to take cargo from city to city. They are also used for personal delivery services for large loads, such as construction materials.	Often operating in small and medium enterprises. Owners have one or two trucks working for bigger logistics companies [Interviewee 9]. Independent operators might also work through stages, just like boda bodas. Their services are more expensive than those of smaller vehicles [Interviewee 5].	

2 A look at popular transport of goods

Light commercial vehicles

Light commercial vehicles and micro-mobility vehicles play a crucial role in Africa's logistics sector, filling gaps such as rural accessibility and last-mile services that may not be covered by heavy-duty trucks and larger-scale logistics operations.

These vehicle types refer to transport modes of less than 3.5 tons [10]. They include vans, pick-ups, bikes, carts, minibusses, tuk-tuks, animal-drawn trailers, and human porters. They play an important role in providing services to 667 million people living in rural areas with limited logistical resources and access to infrastructure, as shown in Figure 5 [11]. They are also present in urban areas, linked to e-commerce, last-mile delivery trips, and courier services. In urban areas, they typically connect a) distribution centers and stores, b) cross docks and customers, or c) stores and customers.

These modes are mostly run by small-scale operators, where a vehicle owner runs their cargo-carrying business by driving a vehicle or renting it to others. The prevalence of such micro-enterprises, often set up without a formal business license, offers advantages such as convenience and high accessibility, even in hard-to-reach areas, and allows for scheduled, personalized deliveries and are ideal for the needs of market retailers and small food wholesalers [5, 12].

Vehicles such as motorcycles, rickshaws, and minibusses used for popular transport of goods are often also used for transporting passengers, thereby avoiding "dead trips" and diversifying the types of trips and customers that drivers can provide [8 and Interviewee 6].

Vehicles are most often rented rather than owned [13]. For example, boda bodas are often rented from owners with several bikes and are usually driven by young men. Women frequently work as porters, a role linked to their traditional involvement in agriculture and marketing. Notably, the surge in demand for e-mobility is catalyzing a shift towards increased participation of women in this field [Interviewee 2].

In some towns, boda boda operators have formed groups to manage their work, including setting rules and dress codes and creating credit associations. They also inform each other about road closures or weather events that might affect their work [Interviewee 5]. These groups have made transport safer and more reliable [13].

Pollution from heavy duty vehicles in Africa

40%
of on-road nitrogen oxide (NOx) emissions

60%
of on-road particulate matter (PM 2.5)

>20%
of black carbon emissions

Medium and heavy-duty vehicles

While light commercial vehicles are essential for last-mile and rural connectivity, the backbone of long-distance freight in Africa is formed by medium and heavy-duty vehicles.

Like in other regions, the trucking sector in Africa is characterized by the presence of large logistics companies that subcontract the carriage of goods to independent drivers or small transport operators, often owner-operators with a fleet of 1-5 trucks [[5, 13], Interviewee 9]. These operators are usually hired to truck the goods to and from the ports. Despite their crucial role in the region's supply chain, in Kenya, for instance, it is estimated that up to 95% of drivers do not have an employment contract with the fleet owner, often being paid based on their mileage [Interviewee 9].

The condition of heavy-duty vehicles in Africa has raised concerns regarding pollution and efficiency. As one UNEP report states: "(Heavy-duty vehicles) HDVs exported to Africa could be of lower quality, poor technology penetration, and fuel efficiency or lower gross weight" compared to Asia, Latin America, and the EECCA block [14]. 40% of on-road nitrogen oxide (NOx) emissions, over 60% of on-road particulate matter (PM 2.5), and more than 20% of black carbon emissions in the region are caused by heavy-duty vehicles [14]. Beyond air quality and pollution, these used, old trucks suffer from frequent breakdowns, causing delays in the supply chain and increased costs to ensure timely delivery [Interviewee 9].

Efforts to improve regional transport connectivity in Africa and decarbonize the sector include an expansion of the railway systems. This has caused concern in the trucking sector as it is perceived as a threat to the livelihoods of operators dedicated to the popular transport of goods. Many drivers are trying to shift and position themselves in the rail sector to avoid being left behind [Interviewee 9].

To ensure a just transition in efforts to decarbonize this sector, it will be essential to assess, quantify, and address potential impacts on jobs (positive and negative) and the need to retrain and re-skill workers in the sector while promoting innovation and professionalization.

3 Trends in the popular transport of goods sector

The role of third-party logistics

Third-party logistics (3PL) can improve the efficiency of supply chains and contribute to a demand for professionalization of the freight sector. The 3PL market had a revenue of 34.89 billion USD in Africa in 2023 and is expected to reach 35.17 USD billion by 2028 (as depicted in Figure 2) [15]. The growth of e-commerce, which will be discussed in the following section, is driving greater demand for effective last-mile delivery solutions - part of the 3PL sector.

The growth of 3PL is motivated by several reasons, including achieving cost reductions in logistics and distribution while companies can concentrate on their primary business activities, accelerated economic growth, and diversification of productive activities needing flexible logistics solutions in the region. The focus on cost reduction and increased competition by 3PL has driven the freight and logistics sector to a situation where a significant portion of workers involved in different stages of its operation do so informally. Although companies have staff workers, numerous "casual" workers in the supply chain work informally and do not have the benefits offered to staff members [Interviewee 4]. These subcontracting practices, however, often result in issues such as drivers not being insured and working long hours [Interviewee 9].

Third Party Logistics Revenue in Africa
(in billion USD)

Source: Statista Market Insights

The influence of e-commerce

The rise of e-commerce in Africa is also reshaping transportation networks, with innovative solutions to overcome challenges like unreliable mail delivery and unclear street addresses [16]. Companies like Jumia in Ivory Coast are revolutionizing last-mile delivery with networks of pickup points and local couriers, who have a better knowledge of the local geography and directions than the available geodata [16]. Similarly, Yobante Express in Senegal and Pargo in South Africa employ networks of local couriers and convenient pickup points to improve last-mile delivery in informal settlements [17].

The rise of "super-apps" in the e-commerce sector, initially focusing on transportation and logistics, gradually expanded their offerings to attract more users and diversify services. Notable examples include Gozem, Careem, Halan, Gokada, Temtem, SafeBoda, and Yassir, drawing inspiration from Asian super apps known for their proliferation under similar circumstances, with limited resources and infrastructure [18].

Informality is also widely present in last-mile delivery services, where thousands of drivers providing services are not considered staff and do not have an "official" relationship with these companies [Interviewees 3 and 5]. For example, the app Gozem has operated in Togo and Benin since November 2018, and approximately 4,000 freelance drivers provide ridesharing and delivery services in various vehicles, including motorbikes, motorized trikes, and taxis [19].

Although the rise of e-commerce seems to have mainstreamed the use of apps and technology into courier and last-mile delivery services, many drivers prefer not to use apps and bypass them as intermediaries for their business. Many boda boda drivers are leaving or not using the apps because they believe they can secure better deals by interacting directly with customers [Interviewees 1 and 2].

The trust system

A common feature of the popular transport of goods is the so-called Indigenous Logistics Systems, which are based on cultural norms such as mutual trust and fraternity [20]. One example is the "Wallabill" or "Message" system in Nigeria, where senders hand parcels to middlemen and bus drivers in a truck park. The way to ensure the delivery will arrive lies solely in trust, by having the contact of the bus driver [20]. This trust system is described by Interviewee 5 in the case of motorcycle couriers: "People trust boda riders in all their business operations: They go shopping, deliver money, collect money from customers, do money transactions, etc."

4 Challenges and opportunities for a climate-friendly development of the popular transport of goods sector

4 Challenges and opportunities for a climate-friendly development of the popular transport of goods sector

The popular transport of goods is widespread and omnipresent in supply chains throughout the African region. Efforts to decarbonize the sector and help it adapt to climate change must consider its realities, challenges, and needs.

Some of the **challenges** identified for integrating climate-friendly practices within popular transport of goods include:

- **Lack of understanding and recognition of the sector:** The role of light commercial vehicles and small-scale logistics operators is essential to ensure products reach their destination in different cities and towns around Africa. Despite the number of goods, trips, and kilometers per day carried out by these services, the common understanding and efforts aimed towards improving freight and logistics tend to be centered around heavy-duty vehicles and long-distance trips. The small-scale logistics and popular transport of goods sector lacks data and recognition, making it essentially "invisible".

  In addition to this, due to its informal nature, there is little available data on its scale and characteristics. Not accounting for these operators might be a missed opportunity. Strategies to decarbonize the freight and logistics sector should consider the whole supply chain. In the words of a representative from the International Transport Workers Federation [Interviewee 9], "If we want to make any change, it will not be just if it doesn't contemplate the whole supply chain."

  A thorough analysis of the sector's scale, operational characteristics, and employment figures is needed to better understand its potential for emissions reductions and the need for a just transition.

- **Routes and connectivity:** The poor condition of the road network in many African countries is often highlighted as one of the sector's main challenges. Having to take detours, vehicles breaking down, or transferring cargo from freight trucks to smaller vehicles due to road conditions and bad connectivity generates inefficiencies that lead to increased emissions in the sector [Interviewee 4]. In the case of last-mile delivery operators using apps, inaccurate maps and navigation data create additional detours in delivery routes [Interviewee 1].

- **Poor and unreliable geolocation and navigation data:** The navigation data used in many delivery apps is imprecise and does not necessarily reflect the reality of the terrain drivers navigate as part of their daily routine [23]. Currently, drivers rely on hand signals, WhatsApp groups, or notifications from various apps to find out about road conditions. This is the way to learn if there are road closures, flooding, interruptions, landslides, etc. Trucks are sometimes stranded for days, empty, after delivering a load [23]. Information about hazards is often scattered and not constantly updated nor consolidated, creating gaps that can lead to inefficiencies in route planning and delivery and increased exposure to climate and safety risks.

- **Weak standards and regulations:** Vehicles used in the popular transport of goods are often second-hand [17]. Therefore, they have higher emissions than newer vehicles. Developing standards and regulations regarding the import of second-hand vehicles should be considered in mitigation strategies for the sector. Also, scrappage programs should be created that encourage the retirement of the oldest and most polluting vehicles [1]. To move towards

electrification, the lack of standardization and regulation of second-hand electric vehicles poses a risk of Africa becoming a dumping ground for them. A lack of know-how and infrastructure to service and dispose of batteries is also a challenge that should be considered [Interviewee 1].

- **Financing obstacles:** The capital cost of electric vehicles, particularly trucks, is unaffordable for many, and fleet operators lack the financing to transition to cleaner, safer, and newer vehicles. Banks perceive popular operators as a risky investment, especially if they are not organized in associations or savings cooperatives. Therefore, vehicle and fleet owners wanting to shift to newer and cleaner vehicles must seek other finance alternatives with higher interest rates or simply not transition to cleaner technologies [Interviewee 1,2 and 5].

- **Skepticism and lack of awareness:** There is a significant lack of awareness of fuel-saving practices and vehicle electrification among drivers, fleet managers, and authorities, which is related to the absence of training and awareness raising on this topic [Interviewee 5].

- **Electric network and lack of charging infrastructure:** The transition to electric vehicles can also be significantly hampered by the scarcity of charging infrastructure and battery swapping stations, especially in areas outside major cities [Interviewee 1]. Unreliable electricity networks are also a challenge, as it is very common for operators to go to regions that are almost off-grid or that have unstable electricity supply [Interviewee 8]. This lack of stable power supply directly affects the development and reliability of charging infrastructure, further complicating the wider adoption of electric vehicles.

- **Exposure to climate change:** In the face of current and future climate impacts, drivers and operators involved in the popular transport of goods are highly vulnerable, particularly considering that most do not have formal contracts or health insurance [Interviewee 5]. For couriers on motorbikes and cargo bikes, road infrastructure is not designed to provide a safe place to rest or wait for customers, increasing their vulnerability to heat waves, flooding, etc. As stated by Interviewee 3: "We've seen cases of them [drivers] drowning and being carried away by the currents." Focusing only on greening the sector through the lens of technology and electrification will not be enough to ensure the sector's resilience in a climate-impacted future.

4 Challenges and opportunities for a climate-friendly development of the popular transport of goods sector

There are numerous opportunities for the popular transport of goods sector to participate in the transition to sustainable development, low-emissions, and resilient mobility. Some of these include:

1. **Fuel efficiency for more sustainability and less costs:** Using less fuel is good for the environment and the drivers' economy. Some ways of achieving this are technology-independent, such as training drivers to accelerate and decelerate in an energy-saving way [21]. Since the choice and maintenance of tires significantly influence the fuel efficiency of trucks [21], fuel-efficient tires and regular checks of tire pressure and wheel alignment are other cost-effective options for reducing fuel consumption [22].

2. **Emissions reduction and independence by electrification:** Light commercial vehicles used for the popular transport of goods, in particular bicycles, motorcycles, and tuk-tuks, are "low-hanging fruits" for electrification due to the quick charging, battery swapping mechanisms, lower purchase prices than larger vehicles, and the fact that two- and three-wheelers are already popular [23]. Currently, less than 0.5% of the motorcycle fleet in Africa is electric [24]; however, their uptake is accelerating. Companies like Ampersand and Spiro have a strong presence in the region and are leading the way in electrifying two-wheelers, particularly in East and West Africa [25]. In addition, given the isolation of many communities, aligning electrification efforts with the development of off-grid renewable energy networks will increase autonomy and reduce range anxiety. Supporting the electrification process of the popular transport of goods sector will require developing financial mechanisms and models that enable more equitable funding and loans, as well as raising awareness among regulators, fleet operators, and drivers. It will also require significant investment in charging infrastructure.

3. **Adapting the built environment:** Adapting the infrastructure in "stages" - the places where boda bodas, trucks, or other vehicles wait for customers, for instance, by incorporating shade, green infrastructure, and permeable surfaces, can be a great opportunity to make their operations more resilient to climate change, while improving the urban fabric (preventing flooding, managing heat waves, reducing emissions, improving air quality, etc.)

4. **Just transition, green and decent jobs:** Beyond infrastructure and technology shifts, for popular transport operators to be able to take part in this

transition in a just way, it will be necessary to adjust business models that currently cut costs through job precarity and profit from informality. Investing in capacity building, supporting the sector (understanding them as SMEs) to improve their business models, optimize their routes, planning, and operations to improve labor conditions will, in turn, have a positive impact on the livelihoods of many people, going beyond decarbonization and generating positive social impacts, particularly in relation to SDG 8 (Decent work and economic growth). Improving the labor conditions of transport workers is also essential for their resilience in a climate-impact future. Examples of measures that can contribute to better working conditions include contracts, health care, insurance for vehicles, goods, and passengers, and infrastructure such as climate-adapted stages and toilets. It is crucial to involve drivers and operators in formulating plans, strategies, and policies aiming towards decarbonizing the sector [26].

5. **Improving accessibility and livelihoods:** The popular transport of goods is essential in ensuring access to markets, especially in regions with limited infrastructure connectivity within Africa [3, 8]. The availability of popular transport services for goods improves market reach and economic opportunities for productive sectors. For example, the reluctance of farmers to boost production due to transportation challenges underscores the importance of these services [20]. Improving the sector's capabilities and coverage, alongside efforts to reduce carbon emissions, therefore presents an opportunity to strengthen socio-economic development in line with Sustainable Development Goals 8 and 9.

6. **Improving efficiency and resilience through better data:** Improving and consolidating data on route conditions and climate hazards could increase the efficiency and safety of goods transport operations, reducing emissions, improving working conditions for drivers, and increasing productivity [Interviewee 1 and 5].

5 Popular transport of goods in Kenya – a brief case study of Nairobi and Kisumu

Background

Across Kenya, goods are carried on heads, wheelbarrows, carrier bags, bicycles, and trucks. Drivers and operators work in dense downtowns, small towns, and rural villages to deliver office lunches, agricultural goods, construction materials, and weekly groceries. A wide range of mostly informal but slowly formalizing arrangements govern these movements - family relationships, Savings and Credit Cooperative Organization (SACCO) management, and mobile apps are all necessary to operate vehicles, fuel, maintenance, and, of course, drivers themselves.

Rental costs for means of transport example

6,000 KES
(~$40) for a wheelbarrow or

50 KES
(~$0.33) for daily rental

There are several ways for workers to enter the transport business. Social capital and connections are key to access to vehicles and employment in the sector. Lower-income Kenyans, unable to raise money for a means of transport like a pushcart or a motorcycle, often start by renting from a wealthier individual. In Kisumu, for example, those unable to pay 6,000 KES (~$40) for a wheelbarrow instead begin their work by paying a daily rental of 50 KES (~$0.33) to use one. In Nairobi, both the daily rental and upfront purchase costs are twice as high as in Kisumu.

Main climate challenges faced by popular transport operators

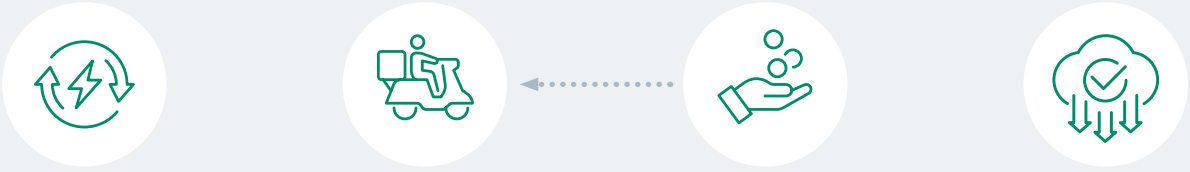
Heavy rains and floods
slow travel or make roads outright impassable for operators, customers, and vendors alike, exacerbated by insufficient drainage systems.

Poor drainage
particularly in the unplanned outskirts of Kisumu and low-income areas of Nairobi, exacerbates these challenges.

Drought and extreme weather conditions
also damage the goods themselves, especially agricultural produce, reducing work for delivery operators in Kisumu.

5 Popular transport of goods in Kenya – a brief case study of Nairobi and Kisumu

Vehicle electrification in Kenya



85%
of Kenya's electricity production coming from geothermal, wind, and hydropower

>3,000
electric two- and three-wheelers are now on the country's roads

42
million additional in funding in the first six weeks of 2024

90%
Reduction in GHG emissions

Decarbonization strategies and the potential for electrification

Efforts to reduce greenhouse gas (GHG) emissions and improve supply chain efficiency in Kenya vary depending on the vehicles and costs associated with these measures.

For heavy-duty vehicles, Fleet Management Systems (FMS), which have been used in the US and Europe for a long time, have become a local innovation introduced by local companies such as MiX Telematics to improve efficiency and reduce GHG emissions. Fleet owners use detailed data from the FMS on fuel consumption, vehicle performance, and driver behavior to improve efficiency and reduce fuel consumption [27]. These systems can reduce fuel consumption and associated GHG emissions by 10-20% in the existing diesel fleet.

Popular transport of goods operators using ICE vehicles in Nairobi and Kisumu use various tactics to reduce fuel consumption - such as turning off their engines on long downhill stretches or changing carburetor settings. However, these can have other unclear impacts on engine life, maintenance, and road safety and are generally not recommended. The introduction of app-based last-mile delivery firms is increasing the reach of retailers and restaurants while reducing the friction of moving goods across the city. Delivery logistics apps have disrupted the previous operation models, often providing more significant benefits to those drivers stationed at high-volume locations like markets and malls. While the apps are available in Nairobi and Mombasa, adoption appears to be much slower in regional towns with lower smartphone penetration and stronger social networks, like Kisumu. Larger tech-based logistics companies, including Wasoko and Twiga, have also been working to scale up operations and deliver goods more efficiently. Local shops benefit from shorter waiting times, lower costs, and access to an expanded customer base through delivery apps and WhatsApp communication. Although apps have contributed to operational efficiencies, it is still unclear whether they contribute to emissions reductions or if they increase them due to an increased number of trips through app use.

6 Conclusions

Vehicle electrification in Kenya is at an early but promising stage, especially for smaller format vehicles, many of which are used for popular transport services. Kenya's electricity production is mainly renewable, with around 85% coming from geothermal, wind, and hydropower, making the shift to EVs more significant regarding emissions reductions [21]. Electrification has focused almost entirely on the two- and three-wheeler segments, including bicycles, motorcycles, and tuk-tuks, as these are seen as the low-hanging fruit for electrification. More than twenty startups are working to electrify these vehicles in Kenya, and over 3,200 electric two- and three-wheelers are now on the country's roads, with an additional $42 million in funding in the first six weeks of 2024.

Switching to an electric bike or motorcycle can save drivers money in addition to reducing GHG emissions by around 90% – Ismael, a boda boda driver using an Ecobodaa electric motorcycle, estimates that he saves around 300 KSh/day, or $15 per week [28]. The two and three-wheeler electrification is facilitated primarily by swapping batteries and facilitating home charging without requiring expensive infrastructure.

Long-haul trucks and, to a lesser extent, pick-up trucks will need dedicated high-capacity charging stations along the main corridors from Mombasa to Nairobi and continuing towards Kisumu and Uganda. Scaling up EVs and FMS together promises significant GHG emission reductions and eventual cost reductions and will be critical to helping Kenya achieve its goal of a 32% emissions reduction target by 2030 [29].

This knowledge brief contributes to the emerging discussion on the role of popular transport of goods and its challenges and opportunities in contributing to a more sustainable transport and logistics sector in Africa. While the scale of popular transport of goods services is not exactly known, it is clear that it contributes to the continent's productivity by linking supply chains and supporting livelihoods directly (for retailers, drivers, and transportation owners) and indirectly (for consumers and farmers).

Progress in professionalization, economic development, and the positive impact of the AfCFTA in the region point to an expected growing demand for transport and logistics services in the coming years. This rising demand poses an opportunity to drive a sustainable transition in the sector. Focusing investments and decarbonization strategies for the logistics sector only on professional freight transporters is also a missed opportunity to implement an integrated, inclusive, and holistic approach to decarbonizing entire supply chains in a way that ensures a just transition for the entire sector.
To move towards a more sustainable freight and logistics sector in Africa, it is essential to engage popular transport operators and address the different dimensions of the sector, including efforts to improve labor conditions, vehicle technology, digitalization, electrification, and innovative financing mechanisms.

Finally, further research is needed to develop climate solutions that are precise in terms of their potential impact and better targeted to specific stakeholders within the popular transport of goods sector. It will be essential to carry out further research, including a thorough sectoral analysis to better understand the characteristics and scale of the sector, as well as its needs and opportunities for different countries, cities, or regions where climate action is being planned.

Sources

1. List of interviewees

No.	Sector	Date Interviewed
1	Delivery and Logistics (Private)	12-11-2023
2	Civil Society Organization	12-13-2023
3	Academia	12-18-2023
4	Academia	12-22-2023
5	Workers / Civil Society Organization	12-15-2023
6	Development Agency	1-17-2024
7	Consulting (Private)	1-4-2024
8	Trucking (Private)	1-23-2024
9	Workers	1-8-2024

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