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Transport

Malawi Transport Infrastructure Sector Assessment Program (InfraSAP)

Connecting People and Markets for Economic Transformation

May 2023

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Acknowledgements

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The team is grateful to the Ministry of Transport and Public Works, and offers special thanks to the Principal Secretary, Hastings Chiudzu, and Principal Secretary Administration, Madalo Nyambose, in addition to key staff, including Ganizani Liwewe (Principal Economist), Geoffrey Magwede (Director of Railway Services), James Chakwera (Director of Civil Aviation), and John Mahango (Director of Maritime Services), as well as Malawi Roads Authority Acting Chief Executive Officer, Mr. Francis Dimu, and Andrew Mthiko (Sr. Economist).

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Abbreviations and acronyms

ACM	Air Cargo Malawi Limited
AIDI	Africa Infrastructure Development Index
BN	Billion
BRT	Bus Rapid Transit
CEAR	Central East African Railways
CMTIF	Comprehensive Medium Term Investment Framework
COMESA	Common Market for Eastern and Southern Africa
COVID-19	Corona virus disease
CPIA	Country Policy and Institutional Assessment
CRMP	Community Road Maintenance Programme
DCA	Directorate of Civil Aviation
DMS	Directorate of Maritime Services
DRTSS	Department of Road Traffic Safety and Services
DRS	Department of Railway Services
GDP	Gross Domestic Product
GHG	Greenhouse Gases
HDM-4	Highway Design Model – version 4
IMF	International Monetary Fund
IWT	Inland Water Transport
LCIB	Local Currency Infrastructure Bond
LIHACO	Lilongwe Handling Company
LICs	Low-income Countries
LMICs	Lower-middle Income Countries
LPI	Logistics Performance Index
MERA	Malawi Energy Regulatory Authority
MIP-1	Malawi 2063 First 10-year Implementation Plan
MLGRD	Ministry of Local Government and Rural Development
MLS	Malawi Lake Services Ltd
MOAM	Minibus Owners Association of Malawi
MPC	Malawi Ports Company
MSC	Malawi Shipping Company
MT	Metric Tonnes
MTPW	Ministry of Transport and Public Works
MW2063	Malawi Vision 2063
NCIC	National Construction Industry Council
NDC	Nationally Determined Contributions
NMT	Non-motorized Transport
NSW	National Single Window
NTMP	National Transport Master Plan
OSBP	One-stop Border Post
PIM	Public Investment Management
PIMA	Public Investment Management Assessment
PPPC	Public Private Partnership Commission
PSIP	Public Sector Investment Plan
RONET	Road Network Evaluation Tool
RoRo	Roll On–Roll Off
SADC	Southern African Development Community
SDG	Sustainable Development Goals
SOE	State-owned Enterprise
SSA	Sub-Saharan Africa
RA	Malawi Roads Authority
RAI	Rural Access Index
RFA	Road Fund Administration
TEU	Twenty Foot Equivalent Unit
TTTFP	Tripartite Transport & Trade Facilitation Programme
UATA	Urban Areas Transport Authority
3W	Malawi Airlines

Terms and definitions

Agglomeration Economies	Agglomeration economies arise when firms and people are located near one another in cities and industrial clusters. The benefits include transport costs savings; the only real difference between a nearby firm and one across the continent is that it is easier to connect with a neighbor. Transportation costs must be interpreted broadly, and they include the difficulties in exchanging goods, people, and ideas (Glaeser 2010).
Corridor Performance Measurement and Monitoring	Corridor Performance Measurement and Monitoring (CPMM) is an empirical tool designed to assess the efficiency of a trade corridor. A set of key indicators establish baselines on pricing, transit times, and safety, thereby enabling a periodic assessment of the cumulative impact of transport and trade initiatives. The CPMM aims to (i) identify causes for delay and cost variable to freight transported along a corridor, including at border-crossing points; (ii) facilitate the identification and resolution of trade bottlenecks; and (iii) assess the impact of initiatives agreed upon through regional cooperation along the corridors.
Informality	A term used to describe the set of firms, workers, and activities that operates outside the legal and regulatory framework or outside the modern economy (Perry et al 2007). It denotes activities ranging from legally constituted companies to workers in subsistence activities, but the latter are more prevalent.
Malawi Vision 2063	The *Malawi Vision 2063 (MW2063)* reflects the long-term aspiration of creating 'an inclusively wealthy and self-reliant nation.' Its primary goal is to position Malawi as an upper middle-income economy by 2063 through three main pathways: agricultural productivity and commercialization, industrialization, and urbanization. The National Planning Commission is tasked with coordination and tracking the country's progress towards a set of high-level outcomes that capture its transformational objectives. A set of flagship investment projects and five-year quick-win interventions are to be led by the respective ministries, departments, and agencies. NGOs, private sector investors, and development partners also have roles in its operationalization.
Performance-based Contracts	Performance-based contracts (PBC) for road maintenance, as well as output-and performance-based contracts (OPRC) for rehabilitation and maintenance, are increasingly used for road asset preservation and management. PBC and OPRC provide a fixed-price contractual framework, with payments based on pre-defined levels of service or performance standards, which, in many cases, is established over a multi-year contract. In the case of output-based, a lump sum is paid for specific lengths of road improvement or rehabilitation works. It also defines the payment deduction for non-compliance. Emergency works under such contract frameworks are often paid on the basis of a unit price, quantity, or measurement, thereby ensuring rapid response to climatic events or needs for reinstating road assets.
Rural Access Index	The Rural Access Index (RAI) measures the proportion of the rural population that lives within 2 km of an all-season road. It is included in the SDGs as indicator 9.1.1, providing a method for measuring progress towards Goal 9 and Target 9.1. Originally developed by the World Bank in 2006, the RAI is among the most important global development indicators in the transport sector.
Trade Facilitation	When policymakers talk about 'trade facilitation,' they are referring to a specific set of measures that streamline and simplify the technical and legal procedures for products entering or leaving a country to be traded internationally. As such, trade facilitation covers the full spectrum of border procedures, from the electronic exchange of data about a shipment to the simplification and harmonization of trade documents. It also covers the possibility of appealing administrative decisions by border agencies (OECD).
World Bank Country Classifications by Income Level	The World Bank country classifications by income level (2020-2021) segment the world's economies into the following four income groups based on gross national income (GNI) per capita (current USD using the Atlas method exchange rates): low (<1,036), lower-middle (1,036-4,045), upper-middle (4,046-12,535), and high-income (>12,535) countries. In sub-Saharan Africa, high-income countries (HICs) include Mauritius and Seychelles, and upper-middle income countries (UMCs) include Botswana, Equatorial Guinea, Gabon, Namibia, and South Africa.

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Executive summary

The Malawi Transport Infrastructure Sector Assessment Program (InfraSAP) diagnostic aims to analyze the country's transportation infrastructure and service delivery through three key pillars: connectivity, finance, and governance

A small, landlocked, and largely agrarian economy, Malawi's development prospects are greatly hindered by the lack of reliable transport infrastructure and services. Its infrastructure gap is significant, ranking 129 out of 140 countries in the *2019 Global Competitiveness Index.*

C Connectivity Snapshot

Infrastructure

- Road network length (km): ~25,000
- Rail network length (km): 932.6
- No. of ports: 4
- No. of airports: 33 total; 2 international
- Rural Access Index (RAI): 23.1 % (2016)

Services

- Road transport accounts for 99% of passenger service, 70% of domestic freight, and
  90% of international freight
- Airline connectivity index: 181/219 (2019)
- Container port performance index: N/A
- Logistics performance index (LPI): 97/160 (2018)

Country Profile

Population: 19.647 million (2021)

GDP (current US$): 12.63 billion (2021)

GDP per capita (current US$): 642.7 (2021)

Poverty headcount ratio at $2.15/day (2017 PPP) (% of population): 70.1 (2019)

Human Development Index: 134/189 (2020)

Connectivity

The main road network is in relatively good condition for both local and regional connectivity; however, the remaining network is mostly in poor condition due to inadequate funds and maintenance. Integrated approaches to urban land use and planning, particularly for urban mobility, have not been explored or developed to accommodate rapid urbanization, while public transport service coverage remains informal, self-regulated, and fragmented. Inter-modal connectivity for inland water transport, rail, and airports is hampered by deteriorated asset quality and market factors.

Executive summary (cont'd)

The Malawi Transport Infrastructure Sector Assessment Program (InfraSAP) diagnostic aims to analyze the country's transportation infrastructure and service delivery through three key pillars: connectivity, finance, and governance (cont'd)

F Finance Snapshot

- The investments in the road sector were higher than those identified in the National Transport Master Plan's (NTMP's) first five-year investment scenario, where actual funding amounted to more than $820 million compared to about $300 million for rural road upgrades, reconstruction, and major works commitments.
- Though the execution rate for investment expenditure has been low for several years, recent commitments of MWK200 billion cleared accumulated contractual arrears in 2021 and 2022.
- Sector revenue generation, retention, and reinvestment remain suboptimal, particularly for waterway and air transport.
- The Local Currency Infrastructure Bond aims to raise MWK1 trillion. The first two auctions raised a total of MWK26.7 billion at 23.25 percent interest.

Malawi's political economy has impeded structural transformation in the transport sector, where fiduciary controls and public investment management have historically been challenges. The fiscal space for long-term infrastructure investment too is rapidly shrinking in the face of macroeconomic shocks and sovereign debt service obligations. However, recent measures to strengthen regulations in public financial management and procurement rules, as well as greater clarity in the approaches to mobilizing private capital and public-private partnerships, can potentially enhance service delivery and accountability

Malawi's transport infrastructure financing needs are substantial, well beyond what the Government can afford or manage independently. A still-current National Transport Master Plan (2017-2037) sets a 20-year investment horizon that identifies funding requirements to the tune of $9.15 billion, financed through a combination of public and private resources, with roads and rail infrastructure among the dominant beneficiaries.

To this end, the Ministry of Transport and Public Works (MTPW) has developed a Comprehensive Medium Term Investment Framework (CMTIF) for 2020-2025 that lays out the priorities to inform Malawi's Public Sector Investment Plan (PSIP). For the 2022-2023 period, transport represents around 16 percent of the PSIP, with foreign borrowing and grants from multilateral and bilateral agencies representing about 70 percent of the total transport financing.

G Governance Snapshot

- Political economy, lax internal fiduciary controls, and inadequate capacity has stifled transport investment efficiency and generated direct and contingent liabilities
- Governance, accountability, and commercial autonomy of the sector's state-owned enterprises (SOEs) need strengthening
- Challenges with the regulation, management, and performance monitoring of existing concessions are leading to their underperformance
- Macroeconomic stability, low capital stock, and investment-grade project identification challenges potential private sector participation

Balancing ambitions and reality in “the warm heart of Africa”

Transport connectivity is crucial for Malawi’s economic transformation into a lower middle-income economy. The Malawi Vision 2063 emphasizes economic infrastructure as an essential vehicle for synergizing sectoral agendas and performance outcomes. Transport plays a fundamental role in creating a more productive and commercial agricultural sector and its success will depend on efficient connectivity for improved access to markets, increased employment, and investments in linking rural and urban centers.

The MW2063 presents several long-term transport development performance indicators that cover modal ambitions related to assets, prices, and service delivery standards. The core sector indicators are aimed at expanding the coverage of Malawi’s paved road network, improving passenger service quality, and increasing ridership levels; and depend on interventions that generate freight modal shift. The likely challenges to achieving the identified metrics include

C Connectivity

- Strategies to ensure rural access and all-weather connectivity must include solutions beyond paving for secondary and tertiary road network development.
- The absence of a functional road asset management system and routine data collection is a challenge as it is critical for prioritizing investment plans based on economic criticality and network resilience. Industry sensitization and the introduction of performance-based contracts on both paved and unpaved roads needs to be championed among government stakeholders.
- Freight modal shift rightly relies on re-establishing rail network connectivity in the southern region; however, a robust climate risk analysis is a prerequisite.

F Finance

- The current inability of local capital markets to absorb the financial demands of the Government’s local infrastructure bond program is likely to worsen the current ‘high-risk’ fiscal outlook on sovereign debt management. The government can lower the risk by tying each bond issuance to specific investments with a clear economic rationale.
- Any railway network expansion to the northern region should be undertaken only after assessing its economic and financial viability, which should primarily depend on private capital mobilization to minimize public sector investment.

G Governance

- Progressive institutional reforms that strengthen both regulatory oversight and rationalize service provider mandates are central to air, railway, and waterway sector development. It is crucial to develop management capacity for performance monitoring of current and future concessions.
- There needs to be greater coordination in the economic and safety regulation of public transport service delivery to improve universal access and mobility demand management at both the central and local levels. There should also be increased focus on the fundamentals for the proper planning of public transport infrastructure and services for both land and lake transport.

	High-priority recommendations	Pillar	Responsible agency	Timeline	Criticality
State of the Roads Sector	**Develop a National Rural Roads Maintenance Strategy**. Focus on developing the secondary and tertiary road network to support network resilience. Support selective upgrading to gravel or pavement rehabilitation to maximize all-season access among population catchments. Strengthen low-volume road standards for accessibility and mobility of vulnerable road users, mainly pedestrians and cyclists.	Connectivity	MTPW/MLGRD	Short term	High
	Align technical and design standards that conform to enacted government policies with legal and regulatory standards. Revise road design, construction, and maintenance standards with a focus on resiliency to meet Malawi's geo-technical requirements. Leverage the expertise of the National Construction Industry Council and University research programs	Governance/ Connectivity	MTPW	Short term	High
	Update and adopt a National Road Safety Strategy. Prepare a multi-sector, costed, budgeted, and time-bound National Road Safety Action Strategy with specific responsibilities assigned to different stakeholders. Strategic objectives should include introducing road safety audit policies, building audit skills, implementing audit recommendations, providing emergency medical services for post-crash care, and improving the roadworthiness of vehicles through related policies and regulations.	Finance/Governance	Multiple stakeholders	Short term	High
Urban mobility	**Define the institutions and mechanisms for regulating urban mobility by empowering a National Urban Areas Transport Authority (UATA),** with specific mandates to plan, coordinate, and grant licenses and concessions to appropriate public transport operators. Strengthen municipalities' role in planning and funding urban mobility and enhance interagency coordination for road safety and environmental regulations/vehicle standards.	Governance	MTPW/Local councils	Short term	High
	Update or develop urban master plans to improve land use and transport synergies in the largest cities. Integrated planning is crucial for preventing further sprawl. Effective zoning must connect central business and residential districts with transport services to improve traffic management for all major and emerging secondary cities.	Connectivity	MTPW/Local councils	Short term	High
Multi-modal	**Update feasibility studies for the Sena line rail bridge**. Detailed economic and financial analysis with robust climate modeling and vulnerability analyses to present all financing instruments and participation parameters can help redefine the roles of both public and private stakeholders for rail connectivity.	Finance/Connectivity	MTPW	Short term	High
	Institute a statutory requirement for conducting an integrated Climate Risk and Vulnerability Assessment. Translate the National Transport Policy from statement to action for all transport modes.	Governance	National Government	Short term	High

Introduction

Improving Malawi's competitiveness through better transport infrastructure and services

Transport connectivity is a vital enabler of Malawi's ambitions of economic transformation. Sustainable transport solutions can foster inclusive growth and shared prosperity, expand access to essential services, and combat the impact of climate change. Integrated infrastructure investments can catalyze the spatial distribution of economic activity by

- Lowering the cost of traded goods
- Improving mobility for employment and opportunity
- Ensuring access to regional and global markets

Further, it facilitates access to healthcare, education, and other socio-economic facilities and accelerates human capital development in a country preparing for a demographic transition (World Bank 2021). New or improved infrastructure can also incentivize agglomeration and complementary private sector investment as firms and workers switch among strategic locations. While agricultural-industrial agglomeration can positively influence sustainable development objectives, there needs to be a focus on its scale and adaptation to the local environment (Zhang, et al., 2022).

Malawi's economic geography and history make it heavily dependent on access to regional trade corridors. Land linkages with the neighboring Zambia, Mozambique, and Tanzania will enable Malawi to play a strategic role in regional trade, but inter-modal transport infrastructure and logistics connectivity are hindering its service delivery and economic integration. Transport costs in Malawi are among the highest in the region. Better road infrastructure can reduce transport costs, makes it easier for businesses to reach internal and external markets, and give consumers access to diverse goods at lower prices (Lebrand, Mathilde 2021). While international transport costs can influence the economy significantly, the high costs of internal freight transport too can impact agricultural commercialization due to the low value of unprocessed agricultural products.

Assessing connectivity, finance, and governance dynamics of Malawi's transport systems

The InfraSAP diagnostic considers Malawi's major modes of transport (roads, maritime, rail, and air) by benchmarking core sector assets and service performance against comparator countries. An overview of public investment management disciplines examines institutional dynamics, the macroeconomic environment, and financial market conditions that influence infrastructure funding in Malawi. A set of policy recommendations for both short- and medium-term interventions are provided to help rationalize public policy and investment priorities, aid the mobilization of private sector capital, and strengthen the Government's regulatory and statutory powers to drive diversification and job creation for economic growth.

The assessment is further organized through the lens of three thematic areas that align with the **MW2063's** aim of enhancing the country's competitiveness through agricultural commercialization, urbanization, and industrialization. Overlaying the **MW2063** objectives, milestones, and key performance metrics, including the **MW2063 five-year** quick win intervention areas, serves to reinforce that:

- **Agricultural commercialization is critically dependent on improved rural connectivity.** Approximately 85 percent of Malawi's population lives in rural enclaves. The MW2063 target of achieving a RAI score of 50 percent by 2030 is predicated on a capital-intensive National Road Program for substantially increasing paved road assets, with a focus on rural connectivity. Although ambitious and well intentioned, the fiscal risks, investment efficiency, and industry-absorptive capacity are likely to present significant obstacles to achieving its performance objectives. The InfraSAP, therefore, looks to present the current state of the road sector.

- **Urbanization places a premium on the development of secondary cities as new growth poles for the country's trade and tourism potential.** On the threshold of rapid urbanization, Malawi needs to equally prioritize transport and land use planning to address informal settlements, public transport reforms, universal access, and safety to shape emerging urban spatial form and ecosystems. A Malawi National Tourism Investment Masterplan must also look to address mobility demand for goods and services, as tourism success heavily depends on road development. As such, the InfraSAP brings the challenge of urban mobility management to the fore.

- **The rail sub-sector underpins Malawi's industrialization and modal shift goals.** To enhance the intra- and inter-regional marketability of domestic goods, the MW2063 prioritizes the reinstatement of the inoperable sections of the rail network (as climatic events have twice ruptured the Sena line) to connect the Port of Beira. Efficient multimodal transport systems are also pivotal to realizing the potential for modal shift of both passengers and freight, a cornerstone of its low-carbon growth strategy. Hence, the InfraSAP aims to evaluate how to eliminate multi-modal constraints to increase competitiveness.

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Quality transport infrastructure and services are critical to build the backbone of a competitive economy

Transportation infrastructure and services can be the catalyst for economic and productivity growth. By connecting Malawi with the rest of the world, transport plays a key role in structural transformation and job creation. It is a crucial enabler of agricultural commercialization, urbanization, and industrialization, as well as last-mile multimodal connectivity, all of which are central to Malawi's ambitions.

State of the road sector: Building the backbone of a competitive economy

Roads are fundamental to improving rural access, urban mobility, and multi-modalism

The Government is committed to creating an efficient road network that is well maintained and links both urban and rural areas to local and international markets. The NTMP identifies the need for around $5.3 billion in road sector maintenance and capital investment through 2037, as well as funding that capacitates new or improved institutional models to implement crucial sectoral reforms. Improving rural accessibility, a notably stubborn challenge, is high among priorities but a preference for paved assets must be balanced with low-volume road interventions.

Optimizing scarce resources to target location-specific socio-economic viability will entail greater selectivity when upgrading and rehabilitating critical road links. Fiscal discipline will be paramount, as a range of factors will create transformation-hindering sectoral risks, including:

- A significant mismatch among the levels of resources required
- Low availability of donor finance and the degree to which an anticipated national development bond program fills this gap
- Insufficient road sector revenues to cover the full network's maintenance needs
- The construction industry's low absorptive capacity and efficiency in executing work programs
- Substantial climate exposure risk

Roads also contribute to human capital development through access to health and education facilities. Yet a rise in road crashes and fatalities is quickly becoming an obstacle to human capital accumulation. The road sector's rising contribution to emissions and poor air quality must also be addressed.

C

Malawi's economy relies heavily on its transport systems, particularly its road network

Malawi's road network provides core lifelines to global and regional markets

While Malawi has air, rail, roads, and water transport, its landlocked location creates an over-reliance on road transport. The country uses roads for 99 percent of passenger service, 70 percent of domestic freight, and 90 percent of international freight. Malawian firms are disadvantaged by the high transportation costs caused by a disadvantageous geography and underdeveloped, poorly integrated multi-modal transport system.

Imports to Malawi primarily come through the four ports in Beira, Mozambique; Durban, South Africa; Dar es Salaam, Tanzania; and Nacala, Mozambique. Most cargo, even bulk freight, is transported by road despite the long distances to the seaports. Rail connections are underutilized largely due to infrastructure constraints at Nacala and network restrictions or gaps with Beira.

The dependence on a poor road transport network, a haulage industry dominated by large multi-national entities, cabotage rules that fragment the local market, and high fuel costs significantly reduce the overall competitiveness of Malawi's exports and increase the price of key imports.

Map 1. Malawi's Primary Land and Inland Water Transport Routes, 2017

Source: Malawi National Transport Master Plan

The 2019 Africa CEO Forum presented several broad recommendations for modernizing logistics to improve continental competitiveness and economic integration. The ones that were most pertinent to Malawi include:

- Developing multimodal corridors connecting hinterlands as a 'bloc'
- Structuring logistics and transport infrastructure to meet the demands of its middle class
- Focusing on governance frameworks that increase State capacity to design strategies, identify financiers, and be dependable guarantors for secure and stable market development.

G

The transport sector is well organized, though decentralization efforts tend to strain technical and management capacity at the local level

The Ministry of Transport and Public Works (MTPW) holds the ultimate responsibility for national policy, regulation, and oversight across all subsectors, including roads

The **MTPW**, through the **Policy and Planning Unit** and the **Roads Department,** is a direct stakeholder in road sector regulation and oversight. The **Directorate of Road Traffic and Safety Services (DRTSS),** which reports to the MTPW, is decentralized into four regional operations, and coordinates with the other national bodies and local authorities in the administration and enforcement of regulations for transport services.

The **Malawi Roads Authority (RA)** and **Road Fund Administration (RFA), which** report to the MTPW and the Ministry of Finance (MOF), respectively, are both quasi-government entities responsible for ensuring that public roads are constructed, maintained, or rehabilitated using publicly raised and administered funds. The RA and RFA are among the better performing Government agencies. The RA is comprised of a Board and a Secretariat; the Board of Directors has ten members representing the private and public sectors. The RFA Board of Directors seats seven members appointed by the MOF from both public sector and private sectors. The RFA's sound financial performance is the result of good governance and management, as well as a steady, dedicated stream of revenue from fuel levies, new toll program, and road user charges directed to the **Malawi Road Fund.**

The updated Public Roads Act provide further clarity on network classification and management responsibility

A clear indication of the jurisdiction of road categories is essential for defining institutional responsibilities for critical network and asset management. The new Public Roads Act entails the reclassification of the network, adding approximately 9,500 km of undesignated roads to an updated total classified road network of 25,000 km in Malawi. The Act also clarifies the roles and responsibilities of the line Ministry, RA, and local authorities.

Local authorities are responsible for the provision and maintenance of transport infrastructure within their jurisdiction; the RA is required to coordinate with the **Ministry of Local Government and Rural Development (MLGRD)** to prepare and implement an Annual National Roads Programme through service level agreements with the respective district and city authorities. Due to technical and fiduciary capacity challenges, the roads under the jurisdiction of local authorities are de facto being maintained and rehabilitated by the RA.

The recent reclassification of undesignated roads will put further pressure on unconstrainted capital and recurrent investments, ultimately increasing the risk of deterioration due to inadequate funds and lack of proper maintenance.

C F

Road network quality impedes efficiency

Table 1: Malawi Road Network Condition Assessment (2020)

	Roads Authority			Local Authority		
Road Class	**Main**	**Secondary**	**Tertiary**	**District**	**Urban**	**Total**
Paved	2,842	819	222	238	625	4,744
% in good/fair condition	92%	90%	86%	61%	34%	82%
Unpaved	515	2,305	3,900	3,262	723	10,707
% in good/fair condition	N/A	N/A	N/A	N/A	N/A	N/A
Total	**3,357**	**3,125**	**4,121**	**3,500**	**1,348**	**15,451**
% share	22%	20%	27%	23%	9%	100&

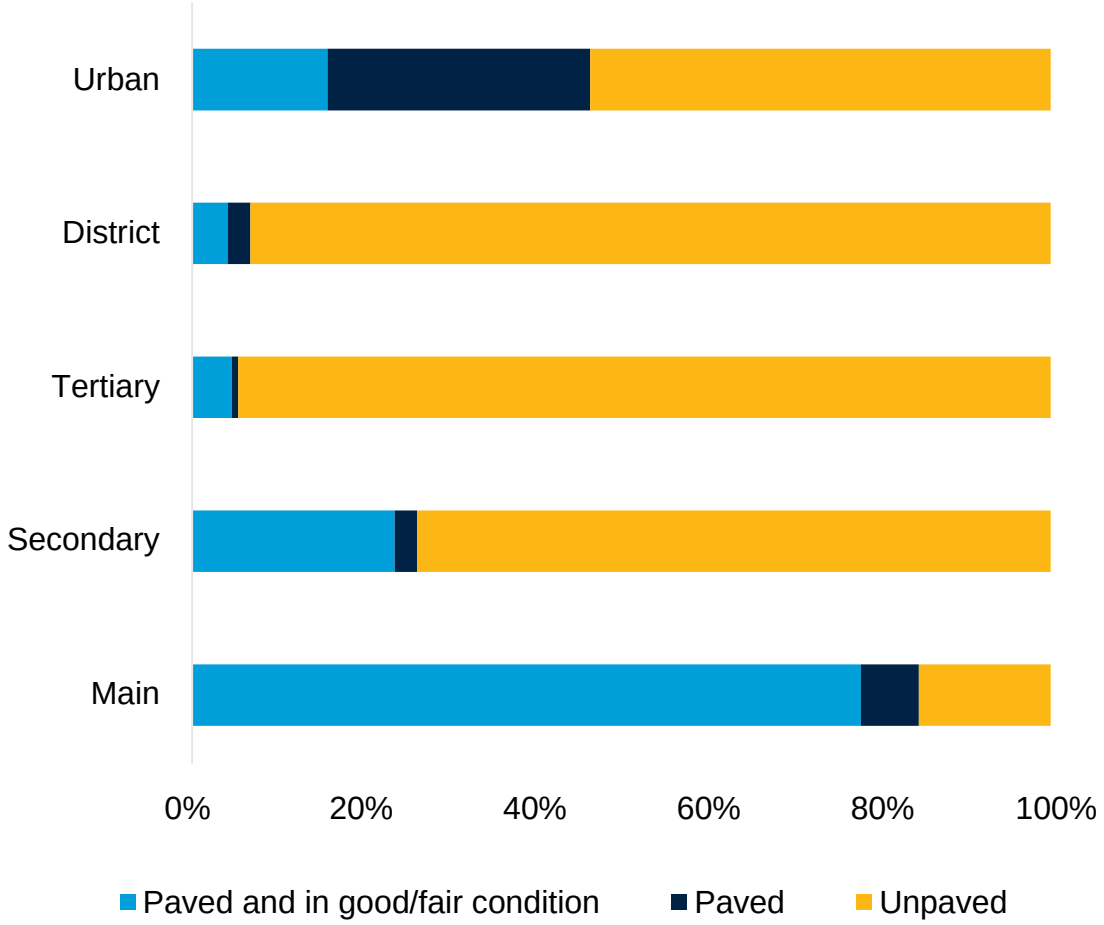
N/A – Not Available

Source: Roads Authority, 2022

C F

Road network quality impedes efficiency (cont'd)

Figure 2: Paved Road Condition by Class (2020)



Source: Roads Authority, 2022

Road infrastructure, the main mode for passengers and freight, is of inconsistent quality

Malawi is served by a relatively extensive and coherent road network that comprises links ranging from paved main roads to narrow unpaved tracks and trails. The previous classified network comprised 15,451km of roads, which include:

- Main (3,357 km)
- Secondary (3,125 km)
- Tertiary (4,121 km)
- District (3,500 km)
- Urban (1,348 km)

In 2022, the country formally added 9,478 km of undesigned community roads to its classified network, some of which are considered part of the core network. In functional terms, the main, secondary, and tertiary roads effectively make up the country's primary network, with district, urban, and other roads acting as a feeder system to the primary network.

The unpaved network is important for reaching neglected areas with high agricultural production

Poorly maintained unpaved roads are often more vulnerable to climate events. The unpaved secondary and tertiary level network, which accounts for nearly half the total classified road length, is underfunded. While routine and periodic maintenance of District and Community Roads are supposed to be funded on a cost sharing basis with the RFA, they receive limited funding for recurrent expenditure. Surveys of the unpaved network are based on annual visual inspections, which reveal wide fluctuations in asset condition due to climatic events.

C

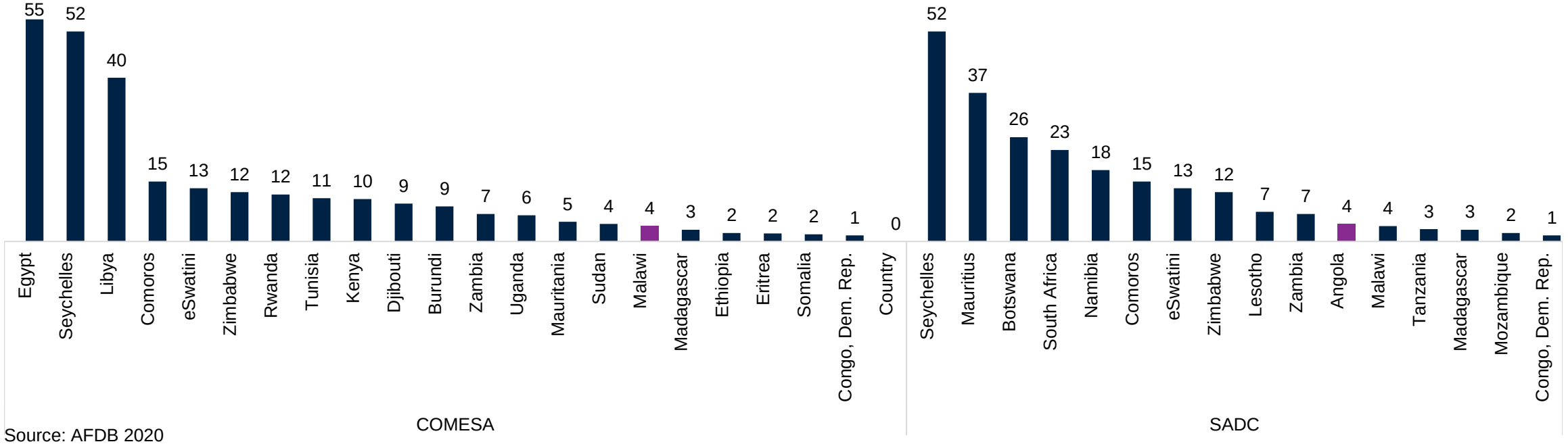
Benchmarking Malawi's roads: The Africa Infrastructure Development Index

Malawi is behind regional comparators in the development of its road infrastructure

Road density relative to population indicates adequate coverage of the current network. The Africa Infrastructure Development Index (AIDI) transport component comprises two indicators associated with road infrastructure: total paved roads (km per 10,000 inhabitants) and total road network in km (per km2 of exploitable land area). As such, it measures density with respect to population needs. The same is observed in its regional ranking in Africa, as well as the Common Market for Eastern and Southern Africa (COMESA) and Southern African Development Community (SADC).

About 85 percent of Malawi's classified road network of main roads are paved and well maintained, is relatively good in terms of local and regional connectivity, but may not yet meet regional standards.

Figure 3: Malawi AIDI Transport Score Compared with Peers, 2020



Source: AFDB 2020

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Benchmarking Malawi's roads with peers

Figure 4: Share of Roads in Poor Condition Relative to Peers

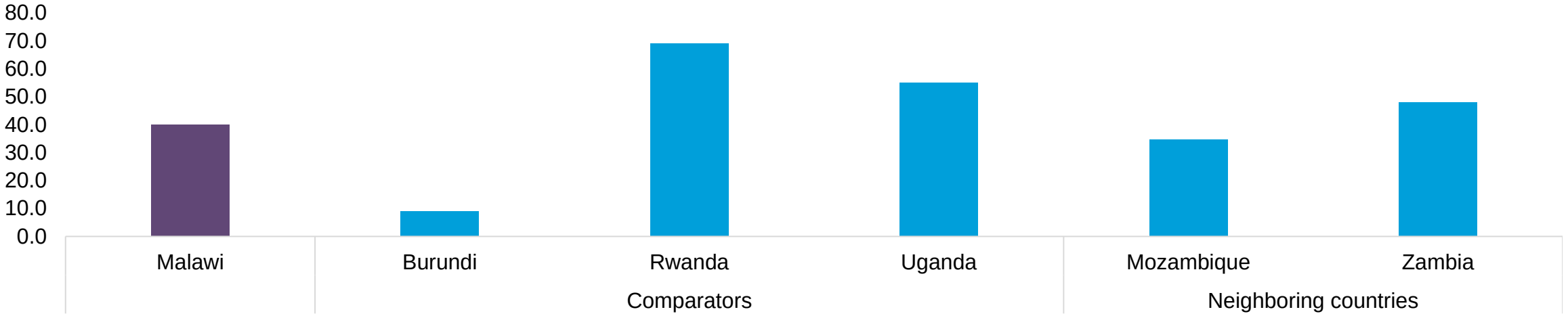
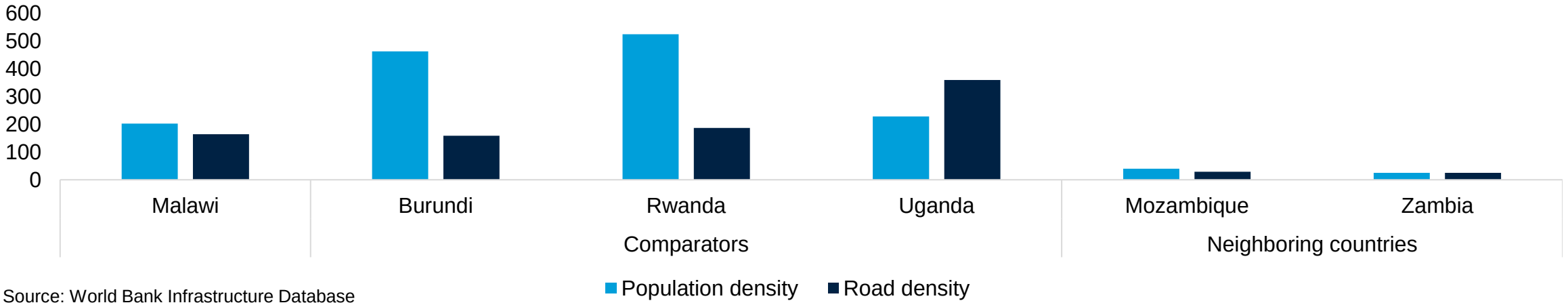


Figure 5: Population Density and Road Density Relative to Peers



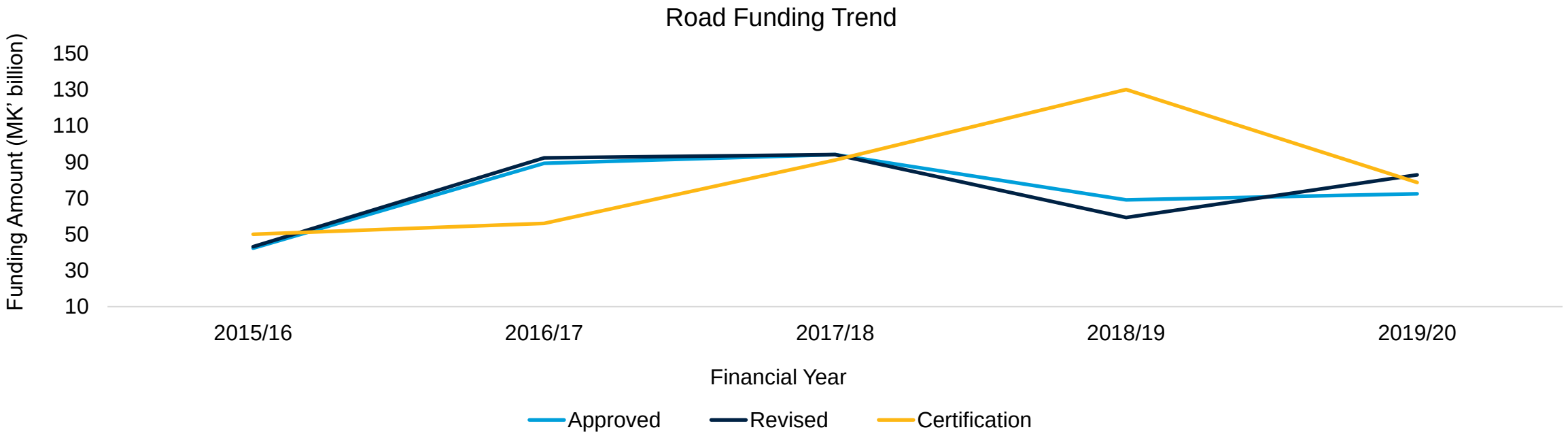
Source: World Bank Infrastructure Database

FG

Road sector projects are mainly funded by the national development budget with donors aiding major construction and rehabilitation projects

The **Comprehensive Medium-term Investment Framework (2020-2025)** identifies a requirement of MW2.30 trillion ($2.24 billion) for the road sector, including planned or committed donor funding for 355.7 km of road preservation works. Of this amount, MK1.3 trillion ($1.27 billion) is required for main roads; MK620.7 billion ($605.6 million) for secondary roads; MK256.7 billion ($250.4 million) for tertiary roads; MK19.5 billion ($19.02 million) for districts roads; and MK64.5 billion ($62.9 million) for urban road projects. Currently, MK703.1 billion in funding is available for all road projects in the CMTIF (equivalent to 30 percent), leaving a substantial financing gap of MK1.57 trillion (70 percent) to meet the total investment envisaged for both paved and unpaved road projects.

Figure 6: Historical Road Funding Budgets, 2016-2020



Source: Road Finance Administration

F G

Donor financing currently accounts for approximately one-third of medium-term investment commitments to the road sector

Table 2: Donor-funded Road Program, 2022

Donor-funded road preservation projects	Road	Km coverage	Fund Source	Timeline	Estimated costs (MK m)	Est. $M (eq)
Karonga-Songwe	M1	45	WB	2018-2022	25,560	25
Kasungu-KIA T/Off	M1	102	EIB & EU	2021-2023	83,224	81.4
Kacheche–Chiweta	M1	66.5	EIB & EU	2021-202	46,039	46
Jenda-Mzimba T/Off (M1)	M1	46.7	EIB & EU	2021-2023	15,454	15.1
Kasungu-Jenda	M1	85.5	EIB & EU	2021-2023	36,845	36
Crossroads round-about to Kanengo	M1	10	China Aid	2021-2023	25,560	25
Upgrade of Lilongwe bridge	M1	0.1	JICA	2023-2025	30,704	30
Nsipe-Liwonde	M1- M8	55	AfDB & EU	2021-2023	56,291	55
Liwonde-Zomba	M3	67	WB	2023-2025	58,287	57
Benga-Dwangwa	M5	160	AfDB & OPEAC		107,372	105
Chikwawa-Euthini, Mkanda-Linga, Chigwirizano-Chileka, Mkutumula-Chamtulo; District and local gravel & earth roads	S109, M9, S118, T345, S124, T381, T383, T385	567	MCC	2023-2026	217,771	213
Total		1,205			703,107	688.5

Source: World Bank (2022)

The donor partners currently active in the road sector include the World Bank, the African Development Bank (AfDB), the European Union (EU), European Investment Bank (EIB), Japan International Cooperation Agency (JICA), the Kuwait Fund for Arab Economic Development (KFAED), the Saudi Fund, the Arab Bank for Economic Development in Africa (BADEA), the OPEC Fund for International Development (OFID), and the Peoples' Republic of China. While most partners invest in the national network, the Millennium Challenge Corporation (MCC) provides grants to support connectivity and access at the secondary and tertiary network levels.

F G

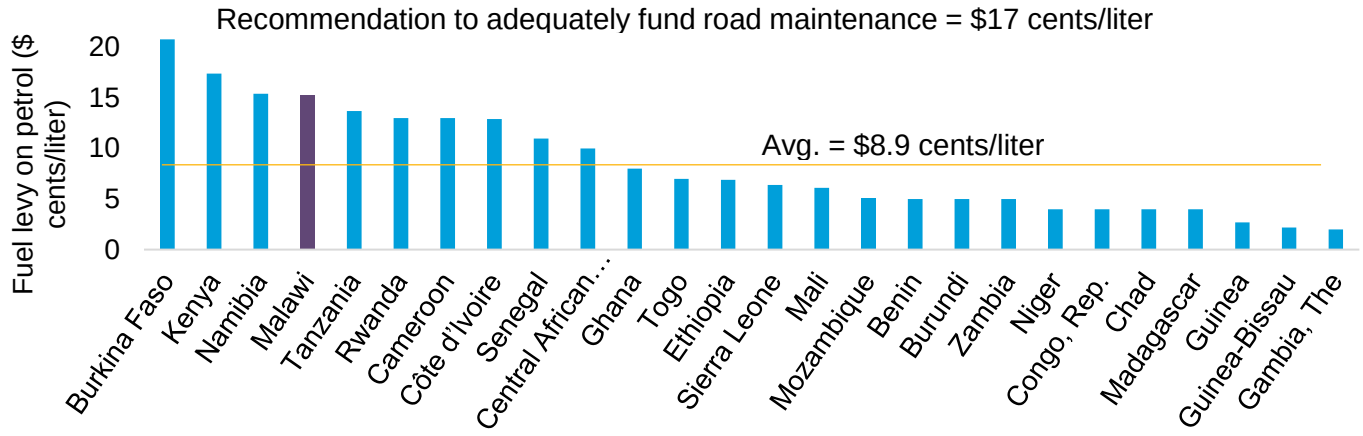
Financing mechanisms for road maintenance are consistent with user-pay principles

Regional comparisons reflect that Malawi fuel levies on the price per liter are above neighboring countries but close to internationally recommended practices

Incremental and gradual increases to the fuel levy are foreseen. In November 2019, a Malawi Energy Regulatory Authority (MERA) advisory increased the fuel levy to 11 percent per liter. The CMTIF advocates for additional increases in the coming years to 16 percent of pump prices, though its timing will largely depend on macroeconomic factors.

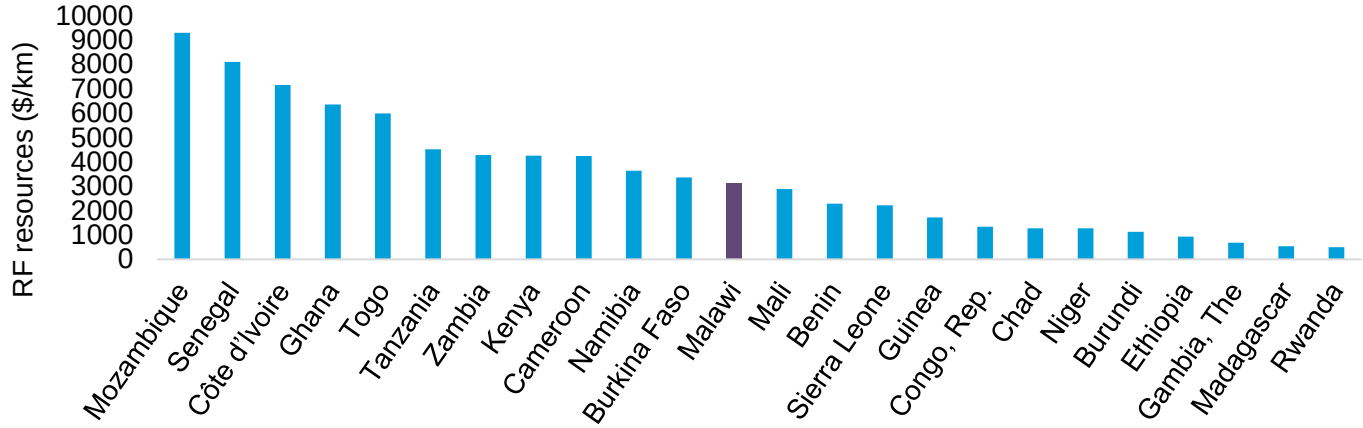
While much of the RFA's total revenue is derived from a fuel levy, it is developing new strategies to increase resources. It successfully initiated a local road development bond strategy as well as a national road tolling program. The RFA strategy is an important performance driver, and the finance department intends to monitor the contributions attributable to each revenue source and report the percentage increase year-on-year.

Figure 6: Regional Benchmarking of Fuel Levies, 2019



Source: World Bank Data

Figure 7: Level of RFA Resources Collected across the Region, 2019



Source: World Bank Data

C F G

The RFA has successfully mobilized private capital for priority projects by leveraging its revenue streams

The RFA has successfully developed a bond program to tap local capital markets. Having proven itself the most credit-worthy SOE with ten years of clean audits, the RFA successfully issued two bonds in 2017/2018 without explicit government guarantees. Enabled by good governance and management, a dependable stream of revenues, and efficient operational capacity, the bond issuance was well received by the domestic capital market. The RFA had a clearly defined mandate to fund the maintenance and rehabilitation of the main road network and a clear fiduciary role for collected revenues that are legally protected. The pricing of RFA's five-year bonds was variable at 1.75 percent above the three-month treasury bill (T-bill). The bonds raised MWK10 billion ($13.3 million) through local private placement to finance a 4.4 km dual-carriageway road in Lilongwe, and it was to be fully paid within a three-year completion cycle. In February 2023, a MWK34.5 billion bond with 15-year tenure was issued for Lilongwe's Mzimba Street and Kenyatta Drive to expand 8 km of urban roads to six lanes. As the RFA plans to continue borrowing from commercial markets over the next decade, the provision of credit enhancements can facilitate additional access to capital.

The RFA has initiated a Road Toll Program, which is in the nascent stages of a national rollout. In December 2021, the RFA launched the (M1) Chingeni–West Toll Plaza, the first of several planned toll gates. This location is expected to capture the highest traffic flows between Blantyre and Lilongwe, and transit traffic from the Mozambique border crossings at Mwanza, Mulanje, and Marka heading north to Lilongwe and beyond. Though traffic volumes on the Malawian road network are too low to be considered 'bankable' projects that can generate sufficient independent revenue streams for potential private sector participation with an operator concession, the RFA anticipates initial annual toll receipts of MWK4.5-MW5.0 billion.

According to global estimates, the minimum traffic needed to sustain a concession would be 10,000 to 15,000 vehicles per day (VPD); traffic thresholds of 6,500 VPD can potentially cover rehabilitation, operation, and maintenance costs. Traffic of 1,500 VPD to 3,500 VPD can cover toll collection and maintenance costs, respectively.

Traffic counts conducted in 2018 during a feasibility study for the Chingeni-West location registered 3,573 VPD, 80 percent of which was heavy vehicles (2,889 VPD) on one of the busier stretches of Malawi's national network.

Source: RFA Strategic Plan

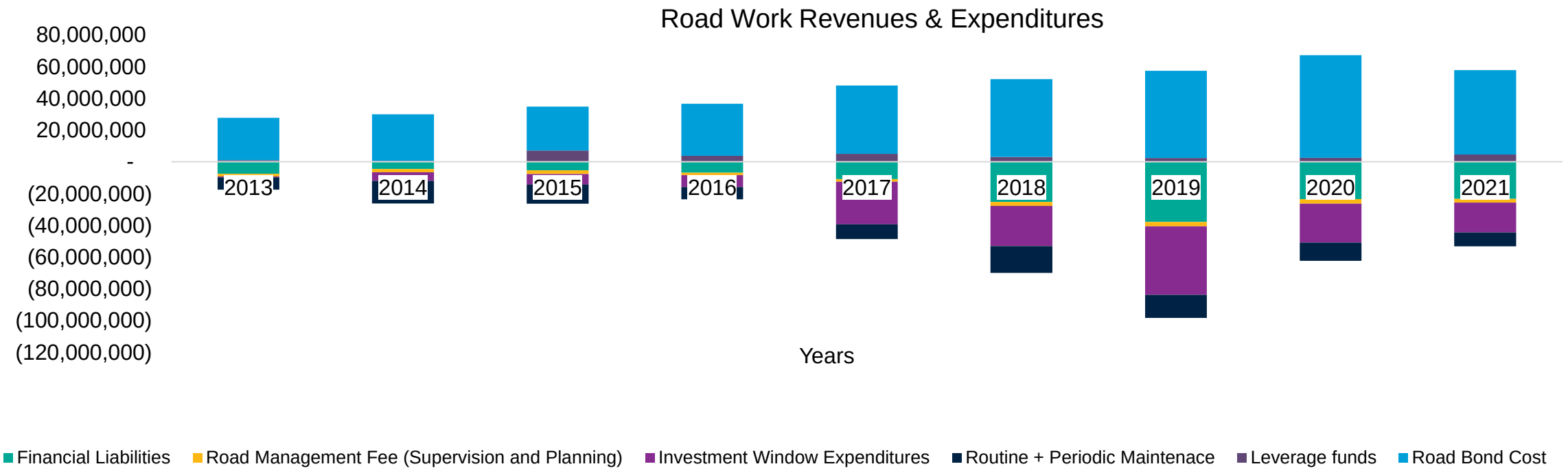
F

The road fund is a key source of support for recurrent expenditures

The volume of resources needed to maintain the classified road network in Malawi remains a challenge

In an optimal scenario, both periodic and routine maintenance of the total existing classified road network will require $166 million per year. Currently, the RF finances around 50 percent of routine maintenance, that too only for the primary network. Yet in some instances, it has covered RA's contract commitments under the Government's capital works programs, diverting scarce resources intended for network preservation.

Figure 8: Road Work Revenues and Expenditures, 2013-2021



Source: RFA

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The road fund is a key source of support for recurrent expenditures (cont'd)

In FY2021, the RF's revenues amounted to **MWK42.9 billion ($52.7 million)**, while its expenditure amounted to **MWK38 billion ($46.7 million)**. The expenditure has remained relatively consistent, with capital budget contribution for rehabilitation works accounting for the increase in FY19. As for revenues, there was an increase in FY20 due to higher fuel levy.

Table 3: Malawi RFA Annual Revenues (MW, 000), 2017-2021

Source	2017	2018	2019	2020	2021
Fuel levy	27,574,259	31,850,724	37,123,621	42,428,525	36,384,290
Road user charges (intern. transit fees)	3,651,739	3,708,602	4,191,119	4,298,338	4,376,065
Financial income	3,633,007	2,245,059	1,082,030	1,010,592	2,153,215
Interest income	3,408,582	2,123,254	812,065	864,76	1,571,703
Sundry income	224,425	121,805	269,965	145,82	581,512
Total RFA revenues	**38,492,012**	**40,049,444**	**43,478,800**	**47,737,455**	**45,066,785**

Table 4: Malawi RFA Annual Expenditure (MW, 000), 2017-2021

Main RF expenditures	2017	2018	2019	2020	2021
Rehabilitation works	21,851,330	21,893,339	36,524,839	20,407,463	19,441,463
Maintenance works	8,913,335	13,732,551	13,685,924	11,534,404	7,433,300
Administration fee	3,896,302	4,501,736	5,640,391	6,292,246	10,552,876
RUC commission	180,560	183,918	209,859	216,051	222,066
RF bond	10,000	107,500	666,584	892,581	348,552
Total RFA expenditure	**34,851,527**	**40,419,044**	**56,727,597**	**39,342,745**	**37,998,257**

Source: RFA Annual Reports

F G

Over-programming and off-budget national road investments created significant liabilities; recent initiatives cleared debt and restored balance

The RFA's fiscal exposure related to current contractual commitments and unpaid invoices has improved significantly from past years.

In previous fiscal years, the RA had more than MWK200 billion ($200 million) in debt and late payment penalties due to the absence of national budget transfers to meet Government-initiated road development program obligations. Concerted efforts in 2021 have nearly resolved the problem.

As of January 2022, there were MKW208.22 billion ($203.64 million) worth of live contracts in the roads sector. These included:

- MKW143,57 billion ($140.41 million) worth of active civil works and MKW4.42 billion ($4.32 million) worth of supervision contracts funded entirely by GoM resources through both national budget allocations and RMF budgets.
- MKW56.36 billion ($55.12 million) worth of active civil works and MKW3.87 billion ($3.78 million) worth of supervision contracts were primarily funded by development partners, with variable limited support from GoM resources, depending on the nature of the agreement with each partner.
- MKW12.94 billion ($12.66 million) worth of completed contracts with unpaid bills.

In the RFA's assessment, key challenges faced during the 2015-2019 planning period included:

- **Political economy pressures on public procurement and contract management in the road sector generate contingent liabilities with SOEs**. The implementing agencies need to ensure full compliance with the Procedures Agreement and the Annual Financing Agreements.
- **Contingent liability compromises value for money.** Off-budget or underfunded road development project mandates led to over-commitment, creating arrears and debt for the RA.
- **The need to align the RA and RFA planning periods** (the RA's strategic plan covered 2013-2017, while RFA's covered 2015-2019) for better efficiency in programming of resources. The RA prioritized a supply-driven planning approach based on funding envelopes rather than a robust prioritization based on a comprehensive and accurate network condition assessment.
- **Public concerns regarding the value for money** along with growing expectations that the RFA should perform technical audits of all projects as part of its quality assurance framework underlines the need to enhance specialized, technical capacity within the road industry.
- **Industry-wide practice of underbidding tenders** lead to price variations during contract execution, which create fiscal risks and increase project costs.

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Decentralization and local authorities' responsibilities for road planning and maintenance is constrained by available resources

District-level funding mechanisms do not yet offer a sustainable solution to meeting road maintenance and development needs

An annual financing agreement between the RFA and RA forms the basis of yearly work program funding allocations and related output targets for preventative and routine maintenance across the full network.

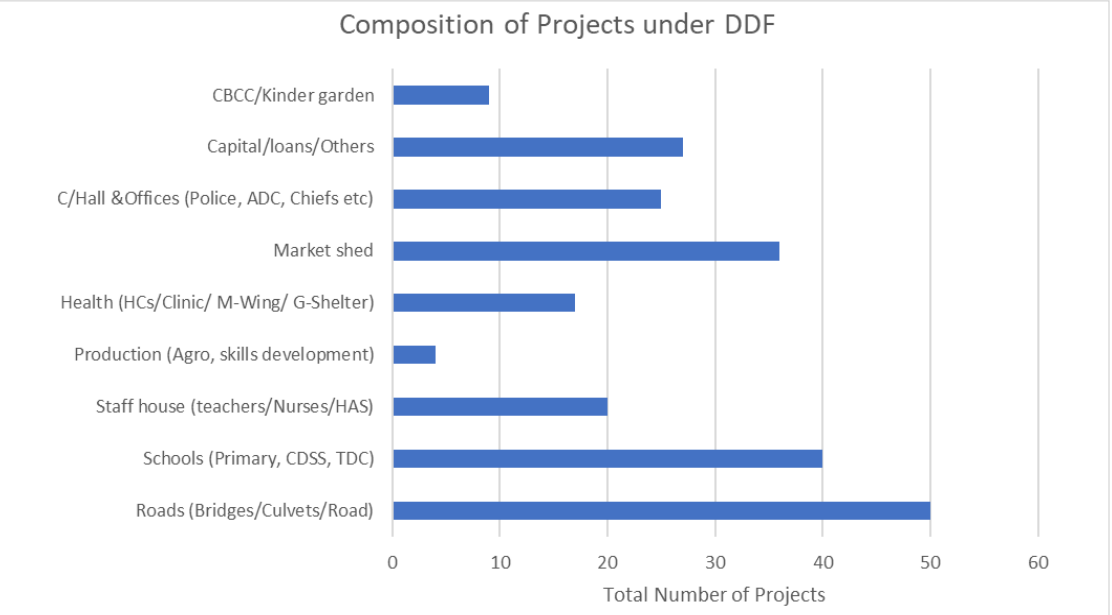
The **Constituency Development Fund (CDF)** is designed to fund local authorities to address citizen-informed community projects. Eligible CDF projects include construction of footbridges, markets and trade areas, community based childcare centers and early childhood development centers, small clinics, water boreholes, and school blocks. (FY20/21 expenditure of MWK7.8 billion, equivalent to $9.58 million)

Additionally, the **District Development Fund** (DDF) and **Infrastructural Development Fund** (IDF) provide investments to urban local councils for similar eligible micro-projects (FY20/21 expenditure of MWK3.75 billion equivalent to $4.6 million). Road connectivity investments in upgrading and resilience accounts for roughly 50 percent of DDF projects, highlighting the demand for district-level road funding.

To increase routine maintenance, the RFA and RA, along with the District, have rolled out a successful **Community Road Maintenance Programmes** (see Box 1).

Local authorities are responsible for lower-level roads. However, due to low budgeted financial resources, coupled with their inadequate technical and fiduciary capacity, the roads under their jurisdiction are de facto maintained and rehabilitated by the RA.

Figure 9: Composition of Projects under DDF, 2020-2021



Source: 2020/21 Local Authority Mid-Year Report

Box 1: Community road maintenance programme

With clear objectives to improve rural communities' access to social services, the Community Road Maintenance Programme (CRMP) helps generate income opportunities by supporting local participation and empowerment through routine road maintenance using intensive labor-based technologies. District councils bear responsibility for CRMP implementation under the overall guidance of the District Commissioner and the general supervision of the Director of Public Works and the District Road Supervisor. It currently maintains 4,633 km through 621 community road maintenance clubs in the 17 districts of Mzimba, Rumphi, Nkhotakota, Kasungu, Mchinji, Lilongwe, Dowa, Salima, Dedza, Ntcheu, Mangochi, Machinga, Zomba, Blantyre, Chikwawa, Thyolo, and Mulanje. Most of the roads under the CRMP are in good condition and are all-weather roads. The annual costs of the program have fluctuated over recent years.

Under the CRMP, a community road maintenance club is contracted for the routine maintenance of a specific length of a rural road previously rehabilitated. Each club member is responsible for maintaining a 1 km stretch throughout the year using labor-based methods. The club membership and size are determined by the length of the road and ranges from four (4) to twelve (12) members and they are supervised on site by community road foremen. The club members and the road foremen are selected from among the village members living in proximity to the road to be maintained and the program targets at least 40 percent women participation in each club. To ensure local ownership and active participation, the selection and replacement of the individual club members and road foremen is done in consultation with the local chiefs and the district councils.

Club members and road foremen are trained in routine labor-based road maintenance to enable them to perform tasks such as:

- Inspecting and removing all obstructions
- Filling potholes and minor gullies
- Reinstating camber
- Clearing side drains and opening culverts
- Opening mitre drains and clearing stream channels
- Repairing structures and clearing drainages and grass cutting

The club members are also trained in entrepreneurship and small-scale business management as they are encouraged to venture into small-scale businesses, such as livestock rearing, to generate additional income.

Source: RFA

C F G

MW2063 road sector interventions are laudable though there are policy, planning, and funding bottlenecks, needing $900 million for major projects

Five-year quick win priorities will likely face a range of implementation challenges

I. **More than a 45 percent increase in the overall length of paved roads by 2030**, with a special focus on rural roads with tourism and mining potential. The construction sector's outputs would need to rise three-fold to achieve this target.

II. **Undertaking systematic maintenance and rehabilitation of road infrastructure, including rural roads.** This is largely constrained by the low ability to prioritize and sequence investments based on criticality, climate, and network resilience.

III. **Upgrading urban roads to bitumen standards** requires investments in urban drainage and sewerage, while balancing it with the more fundamental need to protect pedestrians and bicyclists by providing walkways, bike paths, and improving safety conditions.

IV. **Decentralizing road maintenance** by emulating aspects of the District Infrastructure Roads Maintenance Programme. As part of this process, the implementer has to identify a consistently applied prioritization framework for rationalizing and coordinating annual maintenance planning within available financial resource envelopes.

V. **Setting and enforcing high technical standards for better infrastructure quality**, which invariably requires relevant national guidelines and construction specifications that must be adapted to local contexts, adopted, and institutionalized.

Table 5: MW2063 Road Priorities, 2021

MW2063 road priorities	Class	km	$(m)	MKW (b)
Lakeshore road	M5	432	465.35	371.35
Rumphi-Chitipa	M9	260	232.30	185.38
Ntcheu-Mwanza	S135	140	142.65	113.84
Dzaleka-Malamo	M7/U51	63	59.84	47.75
Engalaweni-Edingeni-Engalaweni	S112	47	15.07	12.51
Chikwawa-Chapananga-Mwanza	S136	99		
Nsanje-Marka	M1	28		12.0
Lirangwe-Chingale-Namatunu-Machinga	S139/T401	62	45.00	

Source: MTPW

The low turnover capacity of the construction industry is likely to be a hurdle to meeting MW2063 targets. The road industry would need to provide approximately 200 km of new or upgraded sealed roads annually, In recent years, the average annual budgets for both paved and unpaved road works was approximately MK74.1 billion ($95 million), achieving a total of 287 km between 2015-2020 (against a target of 490 km), with an equivalent turnover of nearly 60 km per annum at a cost of $600,000 per km.

According to the RFA's strategy, the paved road network has to increase by 1,486 km to connect 35 percent of Malawi's rural population within 2 km from an all-weather road. By RA's own estimates for capital improvement, more than $1 billion is needed to meet this target. Alternative technical solutions such as low-volume sealed roads and gravel roads need to be explored to assess their value-for-money.

C F

Road Network Evaluation Tool (RONET) analysis highlights the sustainability challenges to Malawi's road inventory conditions

A greater emphasis must be placed on funding periodic and routine maintenance

Based on available road condition and funding data[1], an analysis using the RONET model aims to capture how different levels of intervention are likely to impact future network performance. Key findings related to the existing road network highlight that:

- Malawi is expected to need $166 million per year to maintain the current road network optimally over the next five years, while the do-minimum scenario still requires $145 million per year. Ideally, only about 10 percent of this funding should be used for major rehabilitation.
- Many donor-funded programs are focused on rehabilitation and upgrade projects. However, about half of these resources should be allocated to periodic and routine maintenance. Especially in the short to medium (years 1-5), periodic maintenance is critical to preserve the existing value of the network.
- Even in an optimal scenario, the improvement of road conditions takes time. By Year 20, about half the roads may remain in poor or very poor condition.

The implications of 2,300 km of newly paved assets:

- The required financial resources for periodic and routine maintenance across the network would increase by 50 percent, with an optimal maintenance scenario requiring $270 million per year and a do-minimum requiring $246 million per year.

Despite a significant increase in investment, the effect of an expanded paved network on the overall network condition would be modest; a do-minimum scenario would quickly cause the deterioration of the overall road condition.

[1]Some data are outdated or missing. The model was simplified to focus on asphalt concrete roads and gravel roads

C F

Road Network Evaluation Tool (RONET) analysis highlights the sustainability challenges to Malawi's road inventory conditions (cont'd)

Figure 10: Current Spending and Estimated Financing Needs 2022

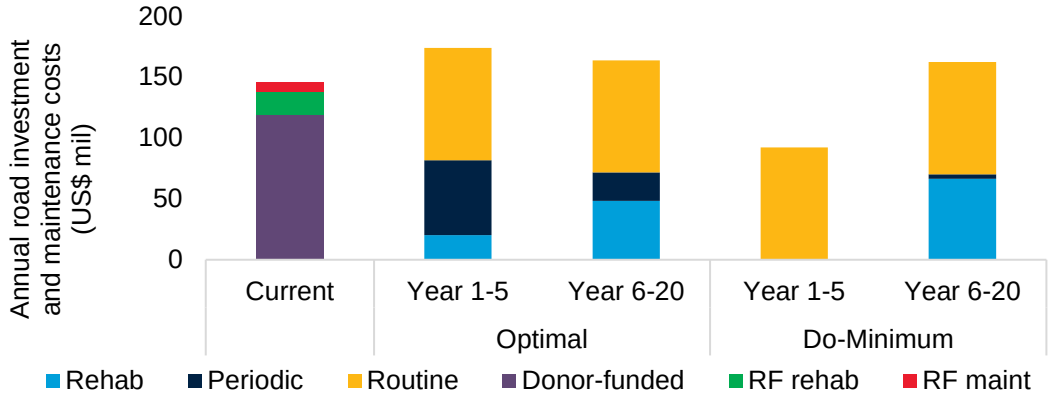


Figure 11: Projected Road Conditions over time – Optimal Scenario 2022

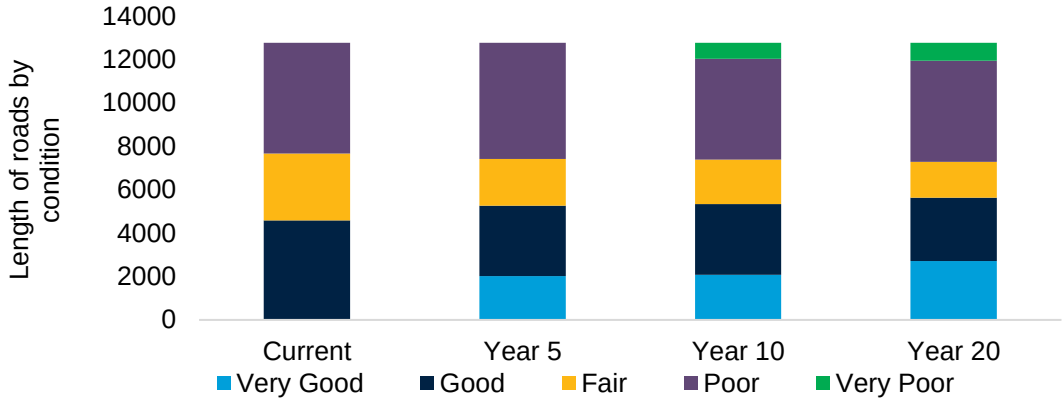


Figure 12: Estimated financial needs incurred with additional 2,300 km of paved roads 2022

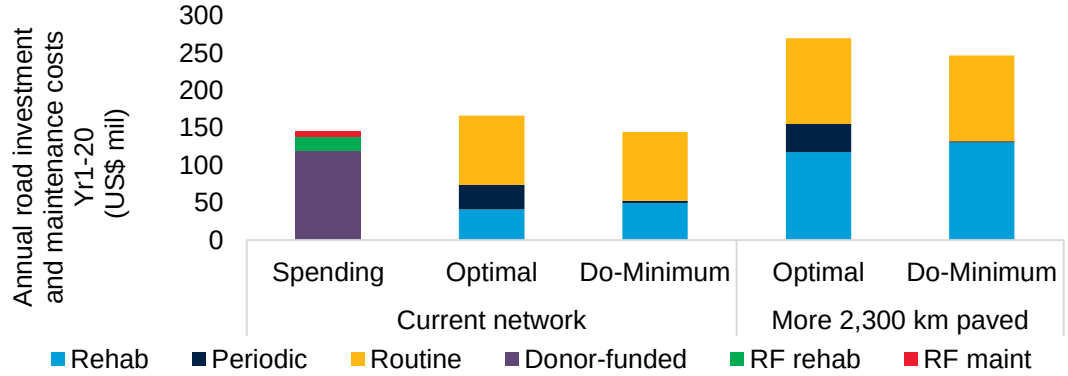
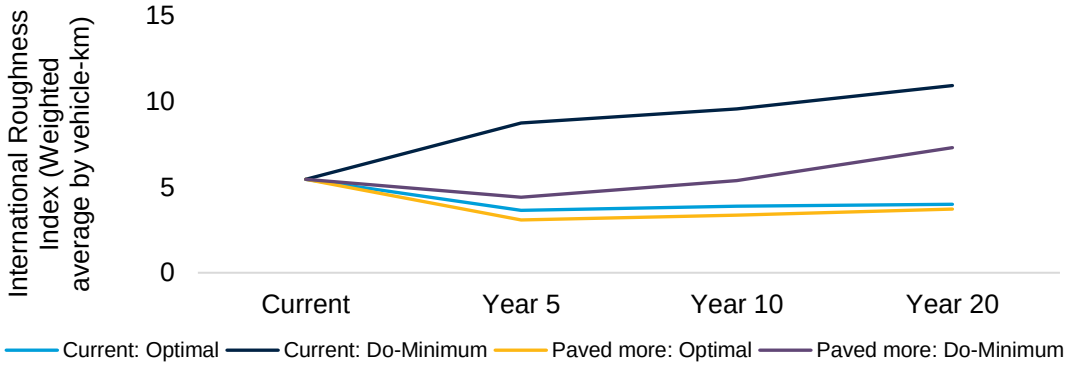


Figure 13: Projected average roughness of the current and expanded paved network 2022



Sources: Author's Estimates

A new spatial planning framework is crucial for the systematic prioritization of both rural and urban road paving, upgrading, and maintenance programs

Maintenance and rehabilitation programs should be determined by road network criticality, current asset condition, and economic contribution

The RA currently lacks a geo-referenced database of its road assets and ancillary infrastructure. Its primary HDM-4 tool** is constrained by a lack of consistent and reliable data. Prioritization tools need to be used to evaluate network criticality, climate vulnerability, incidence of poverty in adjacent areas, and proximity to potential agriculture clusters or agri-businesses. More systematic processes to ensure the provision of services to both national and district levels across the country are crucial to optimizing the country's limited resources.

A recent World Bank analysis of evaluation frameworks intended to support decisions on whether To Pave or Not to Pave rural roads revealed that traditional economic (cost-benefit) analysis is not sufficient and additional parameters such as climate adaptation are needed. It recommends a two-stage, sequential approach to investment decisions that combines the Systematic Paving Decision (SPADE) model with either a cost-analysis evaluation or the Road Economic Decision (RED) model. This multi-criteria study will provide a more balanced, holistic analysis to inform decisions about paving specific road segments.

Malawi's road systems need more than just paving solutions for resilience and must integrate both universal access and flood management to sustain connectivity

Transport services and infrastructure must help create universal access and meet the mobility demand of all road users; however poor rural and urban road conditions impact last-mile connectivity. The prevalence of walking and cycling in Malawi offers an opportunity to support sustainable travel behaviors. One of the ways to address conflicts and safety risks for pedestrians and cyclists is providing dedicated non-motorized transport (NMT) infrastructure on urban roads, and around district and community centers rather than shared carriageways. There should also be a greater focus on incorporating drainage infrastructure into the planning, design, and implementation of resilient urban systems and transport operations.

Building roads that harvest water and manage floods can be a cheaper alternative to a new design for heavier infrastructure and drainage capacity. By applying a Green Roads for Water concept to Malawi's geographies and climates, there would an emphasis on:

- Road alignments and cross drainage in **mountainous terrains** that diverts water to recharge aquifers in semiarid geographies, along with low-cost and effective slope stabilization
- Managing flooding to boost agricultural productivity in **wet lowlands**, where roads effectively double up as protective embankments, evacuation routes, and flood shelters
- Serving local communities using roads to harvest water in **arid and semiarid areas**, which can be applied directly to the land

** Note: An update to the HDM-4 model is currently under development and scheduled for completion in 2024. The new version will encompass primary, secondary and tertiary roads.

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Decentralization hinges on adapting technical and design standards to Malawi's specific geographic, environmental, and operational context

Despite low traffic volumes, secondary and tertiary roads are vital for road network resilience and rural connectivity

A comprehensive Rural Road Maintenance Strategy to identify, prioritize, and invest in rural connectivity would greatly aid the decentralization agenda. Mostly unpaved and unengineered, rural roads remain in poor condition. Maintenance activities identified and implemented by local authorities often involve labor-based approaches without compaction, which tends to loosen soils, rendering the roads vulnerable to erosion and other environmental degradations. Design and supervision capacity is also low among small local contractors involved in district road maintenance, with many of them lacking experience and technical knowledge.

Several initiatives for rural roads have delivered mixed results due to the lack of adequate maintenance:

- The European Union (EU)-funded Income Generating Public Works Programme and Rural Infrastructure Development Programme, which pioneered efforts to engage rural unskilled labor though sustainable all-season rural access, were often short-lived.
- An EU-funded Rural Roads Improvement Programme focused on rehabilitating rural roads and a Prioritization of Road Maintenance System (PRoMS) pilot in 12 project districts can inform further development of asset management systems.
- Similarly, the WB-financed agriculture sector-wide project piloted low-volume sealed roads (LVSR) approaches for rural roads with low traffic counts and proved to be moderately successful.

Greater emphasis on quality assurance, reliable material selection, and asphalt design specifications is needed

Though SADC regional road standards are widely used, they do not account for local variations in climate and materials. The SADC standards cover geometric design, pavement design, bridge and culvert design, road markings, and traffic signs, but the design manuals do not cover requirements such as hydrology and drainage design or road maintenance.

The National Construction Industry Council (NCIC) has a mandate to regulate, develop, and promote improved code enforcement. Collaborations among road authorities, Malawi Bureau of Standards, Central Materials Laboratory, NCIC, and university programs on sector research and development is vital to the adaptation agenda. It is crucial to develop a concerted and coordinated approach to strengthen ties among key road sector stakeholders including policy makers, transport agencies, engineering practitioners, research institutes, and private sector contractors and consultants.

There should also be a focus on national expectations and industry commitments to better manage environmental and social risks. Construction regulators need to develop tools to monitor and audit contractor and consultant industry performance to enforce responsibility, This will ensure that completed works meet required specifications, as well as social and environmental sensitivities.

Box 2. Transitioning to performance-based road contracting

Performance-based contracts (PBC) and output and performance-based road contracts (OPRC) can improve the effectiveness and efficiency of road development and maintenance practices. OPRC projects provide a strategic advantage in the allocation of design risk and ensure cost effectiveness. By securing or structuring sufficient long-term financing commitments (either through road funds, bond programs, or upfront private capital), the delivery modality has incentivized contractors to achieve value for money by focusing on asset quality and meeting level of service metrics. OPRCs can improve both construction quality and performance-based maintenance practices using annual survey tools such as the International Roughness Index as well as through the frequent scheduling of routine maintenance as part of the payment process. A key benefit of OPRCs is their ability to address climate risk and resilience through mechanisms that enable contractor rapid response readiness, and their ability to quickly mobilize and undertake emergency works.

Private sector risk transfer can be achieved by allowing contractors to develop medium-term asset management programs that meet the capital works, preservation, and routine maintenance specifications for sustaining asset conditions. OPRCs work best when long, contiguous road segments (ideally greater than 100 km) require substantial improvement to lift the overall asset value. They will help maintain good quality sections by undertaking at least one cycle of preservation activities in the later years of a contract using medium-term investment.

Conceptually, a case can be made for Malawi's most critical trade corridors (sections of the M1, M3, or M5), whereby the RA and RFA could place longer road segments of 100 km to 200 km under a ten-year OPRC. Capital works for various segments requiring reconstruction, funded either by Government or donor finance, would embed climate resilience interventions in the minimum design specifications. The RFA, through a mix of resources, including a dedicated, local bond tied to the road project, new toll revenues, or RF resources, would be responsible for funding the periodic and routine maintenance cycles of the entire segment. The contract would include emergency works (bid on agreed unit costs for earthworks and pavement repairs) so that the RA can have a contractor ready to respond in the event of or need for disaster recovery efforts. This approach ensures critical connectivity while reducing the risk of asset depreciation, and assures the contractor of funding to respond immediately.

Integrating resilience in transport asset planning and construction is a core expectation of the 2019 National Transport Policy

A comprehensive assessment of Malawi's road and bridge infrastructure inventory and condition is a top priority

A cogent methodology to forecast the exposure risk of roads and bridges to natural hazards (flood, wind, temperature) in hydrological and geotechnical studies is needed, as well as updated technical specifications and guidance material for bridge, culvert, and drainage design life. Preparation of more robust designs must first holistically examine how climate risks have been identified, considered in the economic and financial appraisal process, and addressed through either structural or non-structural interventions. The data and analysis of aging and risk-exposed structures would then help develop a prioritized Bridge Replacement and Maintenance Plan, with interventions based on network criticality.

To capably forecast and model risk exposure of transport assets and future investment scenarios, updating the Malawi *Guidelines for Peak Flood Estimation for Design of Culverts and Bridges and Design of Spillways of Dams (1987)* is paramount, and the responsibility rests with the Ministry of Forestry. Malawi would also benefit from developing country-specific guidelines for structures like drifts and Irish bridges, emphasizing asset performance under flood loading, to increase the resilience and connectivity of low-volume crossings.

Vulnerability assessments addressing specific regional threats must be conducted. *Guidelines for the Road Sector to Increase its Resilience to the Effects of Climate Change* were adopted by the Government in October 2020 to climate-proof road infrastructure investments. The guidelines acknowledge that the current design standards and standard specifications for road and bridge works remain generally relevant, though modifications are deemed necessary. Future approaches can include:

- Accelerated implementation of new guidelines developed in *the Low Volume Roads* Manual (2020), which also take into account the accessibility and mobility needs of vulnerable road users, mainly pedestrians and cyclists
- Support for selective upgrades (to gravel) or pavement rehabilitation to ensure all-season access
- Support for spot-improvements of rural district roads

There is a need for crisis response mechanisms that provide emergency recovery support following an eligible crisis or emergency. Rapid recovery and reconstruction require that transport agencies and operators have in place adequate contingency plans, including financial arrangements such as credit lines or insurance products, and response readiness through prearranged contracts for civil works and emergency services.

- Contingency allocations should be made available in RF on an annual basis
- Ex-ante instruments for have to be used for maintaining and rebuilding core infrastructure

C

Targeting resilience measures based on vulnerability improves network redundancy that ensures connectivity in times of crises

Approximately 4,350 km of Malawi's classified road network is potentially affected by 1 in 50-year fluvial flooding events, of which 3,600 km (34 percent) is likely to be disrupted. About 1,400 km is assessed to be in poor condition and highly susceptible to heavy rain and flood

A climate exposure and criticality analysis of Malawi's roads and bridges reflect a high vulnerability to heavy rainfall and flooding as well as ground subsidence, which present a dual threat to the country's critical road network. Though higher temperatures and increased solar radiation will reduce the lifecycle of paved road surfaces, there is a greater threat to bridges, culverts, and embankments from intense rainfall and run-off. Vast areas, especially in the south, are prone to flooding.

Potential economic losses caused by road disruption can often be far greater than gradual infrastructure damages. The total economic risk posed by climate events to the road network is estimated at $163 million per year, which is equivalent to 1.3 percent of the country's GDP. The estimated potential annual damage to infrastructure is about $4.3 million, while the potential disruption costs are approximately $158 million per year.

National Road M1 remains the most critical road corridor, essentially serving as the core of the road network. Other primary north-south connectors and regional corridors (particularly M3 and M5) are critical too. Without these roads, the total travel time between the major cities would increase by up to 27 percent. Key secondary and tertiary routes are also considered vital to reducing economic risks by ensuring network resilience within the northern (S100, T303), central (S125, T358), and southern (S129, S137, S152, T423) regions. For agricultural growth and food security purposes, the climate resilience of these roads is vital to ensure sustainable access.

C

Targeting resilience measures based on vulnerability improves network redundancy that ensures connectivity in times of crises (cont'd)

ⓘ A high-level road network criticality analysis reinforces the reality of climate exposure risks

Figure 14:
Road Condition 2022

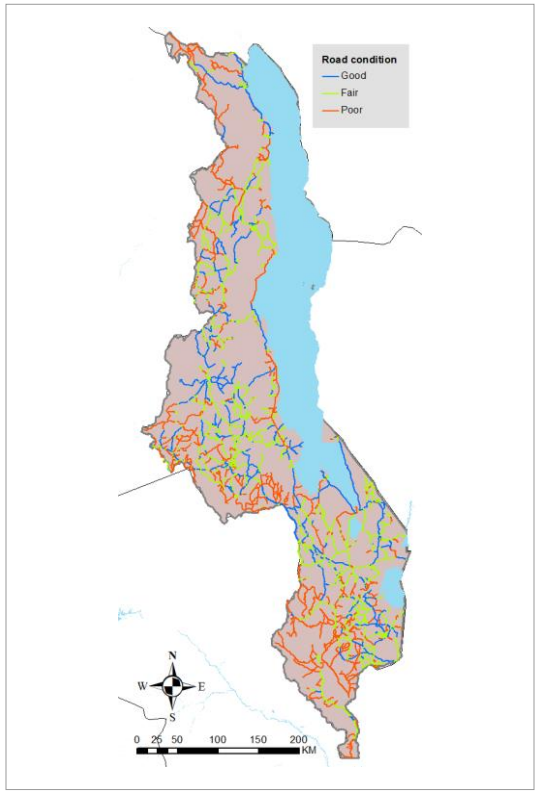


Figure 15:
Road Network Criticality 2022

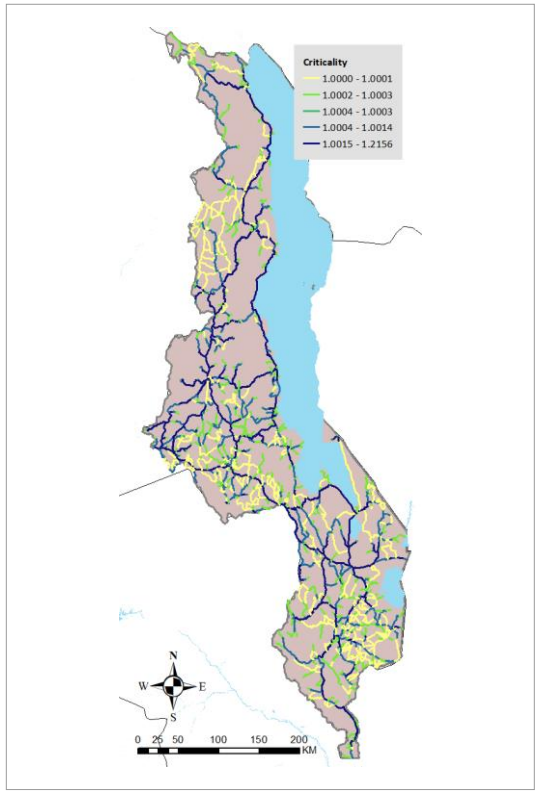


Figure 16:
Economic Criticality 2022

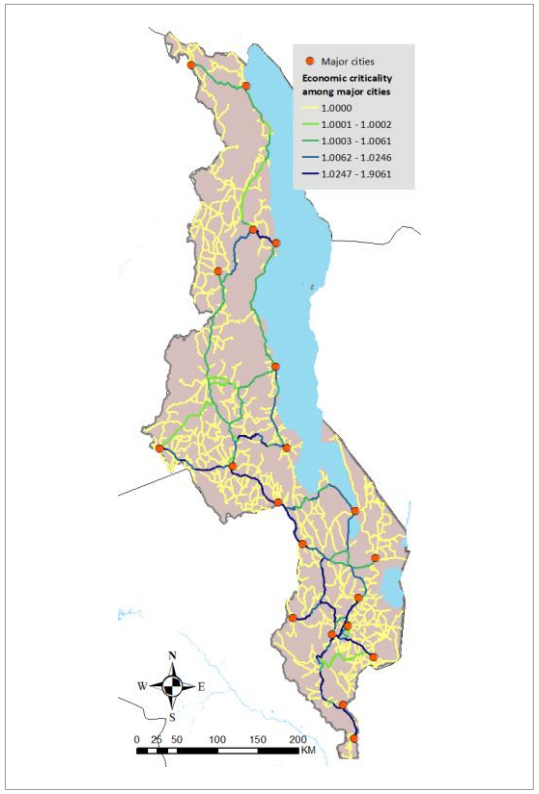
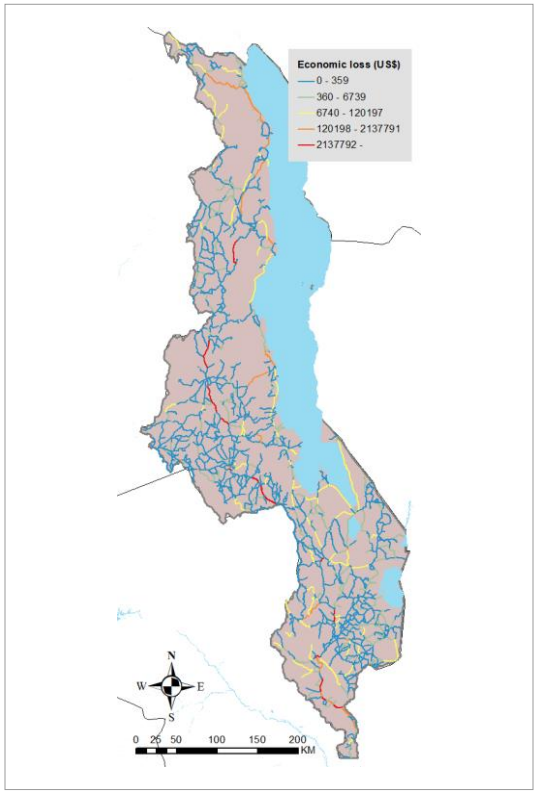


Figure 17:
Potential Economic Losses 2022



Source: World Bank Country Climate and Development Report (2022)

Benchmarking Malawi: Roads and human capital

Road transport connectivity and services play an integral role in country's ability to reduce rural poverty and support human capital accumulation, where Malawi's experience is like much of Sub-Saharan Africa (See Box 3).

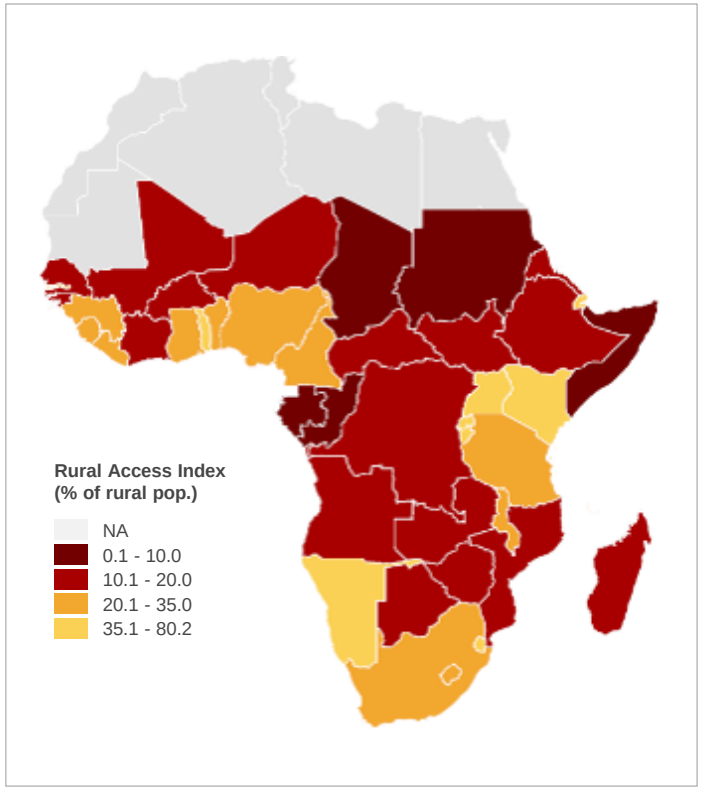
- **The MW2063 targets aim to increase its Rural Accessibility Index (RAI) score to 50 percent by 2030**. Poverty remains widespread and driven by poor performance of the agriculture sector, volatile economic growth, and limited opportunities in non-farm activities. The moderate national poverty rate has declined slightly to 50.8 percent in 2020 from 51.5 percent in 2016, but extreme (ultra) national poverty increased slightly to 20.5 percent from 20.1 percent during the same period. Rural areas account for 56.6 percent of the poor and 23.6 percent of ultra-poor, while urban areas account for 19.2 percent and 3.3 percent of the poor and ultra poor, respectively.

- **A lack of safe infrastructure and vehicles and enforcement of road safety regulations mean that SSA has the highest road traffic fatality rate of any region, with Malawi's road safety challenge even more acute**. The World Health Organization estimated that the mortality rate from road traffic injuries in Malawi was 31 persons per 100,000 population, with road injuries the fifth leading cause of loss of disability adjusted life years (DALYs), whereby men are significantly more impacted than women.

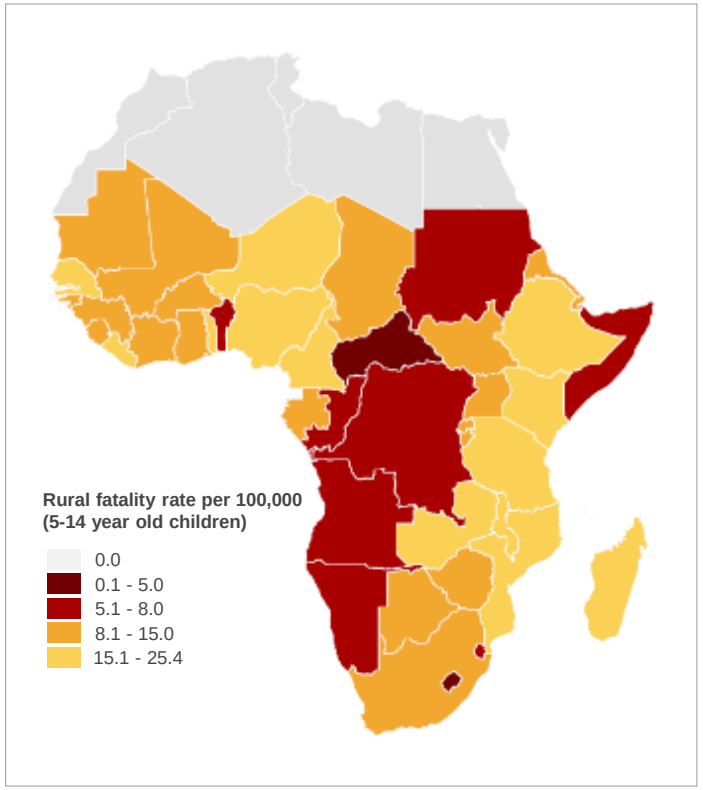
- **Malawi's GHG emissions are currently among the lowest compared to neighboring countries, both on an absolute and a per capita basis**. Energy use is expected to be the largest driver of emissions as population and economic growth increase demand for transport, power generation and products. Rising emissions from waste generation, livestock and crop management are also likely to be significant. Air quality monitoring and analysis is not readily available.

Box 3. Benchmarking Malawi: Roads and human capital

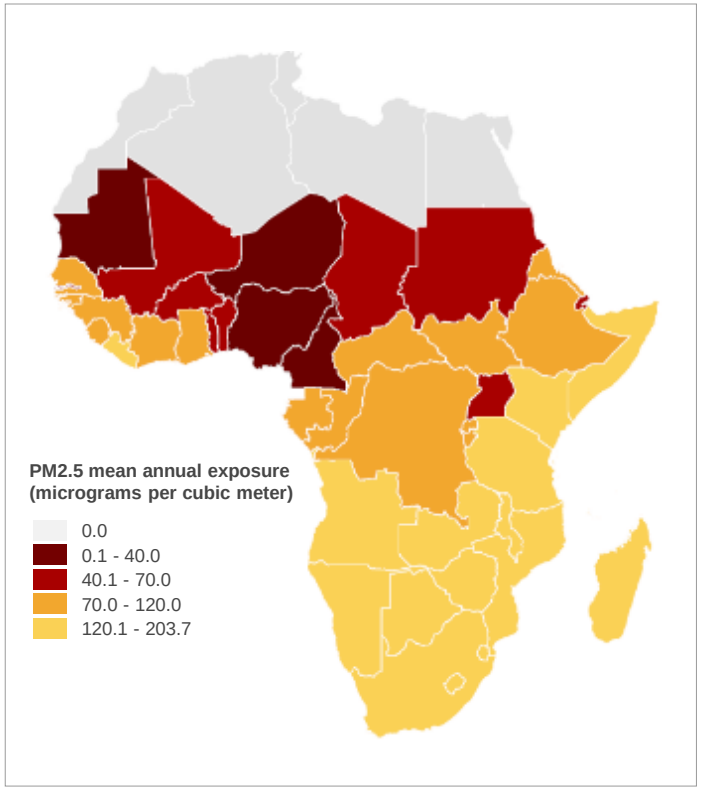
Rural Access Index (latest available)



Road fatality rate per 100,000 (children 5-14 years old)



Average annual exposure to PM2.5

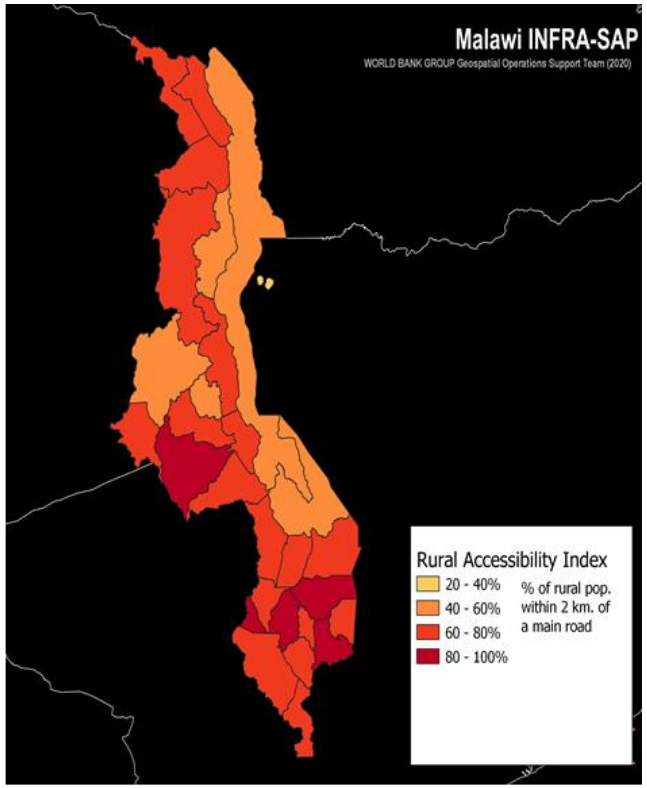


Sources: Transport Global Practice Narrative (2019)

C

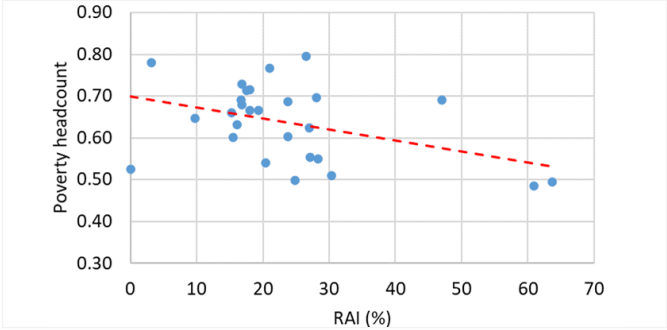
Only 23 percent of the rural population has access to an all-weather road

Figure 18: Percentage of the population within 2km of a paved road (RAI, 2016)



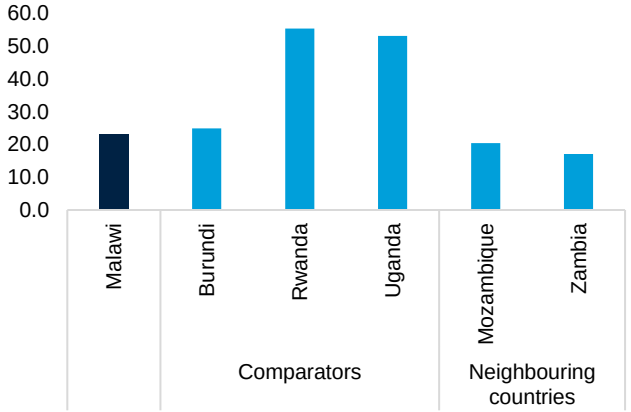
While the RAI is relatively high in large cities such as Blantyre, Lilongwe, and Karonga, it tends to be low in the hilly or hinterland districts such as Ntchisi (9.8 percent), Mwanza (16.7 percent), and Neno (14.5 percent).

Figure 19: Malawi District-level Poverty relative to RAI (2019)



Source: Author's Estimates based on Extreme Poverty Headcount Index by the Center for International Earth Science Information Network (CESIN), Columbia University; and our RAI from World Bank. (2019).

Figure 20: Regional Comparisons of RAI



Source: World Bank data

Malawi's RAI data suggests:

- It has better road accessibility than neighboring countries
- The northern half of the country has poorer rural access to main roads but also has a lower population and population density
- 23 percent of the rural population (more than 70 percent of rural residents) is within 2 km of an all-season road
- 36.5 percent of the rural population is within 2 km of a primary or secondary road
- District-level poverty headcounts are seen to decline as rural access improves

Table 6: Country-wise Comparison of RAI by Network Level, 2020

Country	RAI PS (primary and secondary)	RAI PST (primary, secondary, and tertiary)	RAI PSTT (primary, secondary, tertiary, and tracks)
Malawi	**36.5**	**90.4**	**91.8**
Mozambique	17.8	53	55.7
Tanzania	29.9	73.2	74.9
Zambia	12.5	36.3	38.7

Source: World Bank Data

The dominant mode of transport in rural areas is walking, with biking and kabazas (bicycle taxis) becoming increasingly prevalent over the past decade. A mix of Matolas (pick-ups), buses and minibuses, motorcycles, and taxis meet other personal and public transport needs.

F G

Transport can support human capital formation

Safe transport infrastructure and services are needed for equitable human capital accumulation

Human capital formation can be facilitated by accessible and good quality transport services. Malawi's scores for the Human Development Index (HDI) have risen steadily over the past three decades. The capacity of the population to access health and education providers is affected by the availability of reliable transport services and its affordability, especially for the poorest (World Bank 2021). In Malawi, more than half the female population between 15 years and 49 years from the lowest income quintile report that the distance to a health facility is a barrier for seeking treatment. This is a concern when seeking antenatal care, which is crucial for maternal and infant health.

Improving road safety and reducing fatalities also supports human capital accumulation. The World Bank estimates that road crash deaths and injuries are costing Malawi around 10.8 percent of the GDP each year, with road traffic incidents (RTI) costing $558 million annually. In 2021, the Directorate of Road Traffic Safety and Services reported 1,226 fatal road traffic crashes (RTCs), roughly 25 percent of which occur between Lilongwe and Blantyre along the M1.

The severity of the road safety challenge puts pressure on medical and health systems. Fatalities and injuries from road traffic crashes represent a significant and growing economic and social cost in Africa, particularly along major trade corridors. Recent findings from a high-quality trauma registry pilot highlight that RTCs:

- Predominately impact productive age groups of 18-64 years (75 percent)
- Make up almost half of the recorded trauma admissions (48 percent)
- Are mostly pedestrians and cyclists (49 percent)
- Experience delays in treatment, with an average of two hours between the time of trauma and the time of arrival

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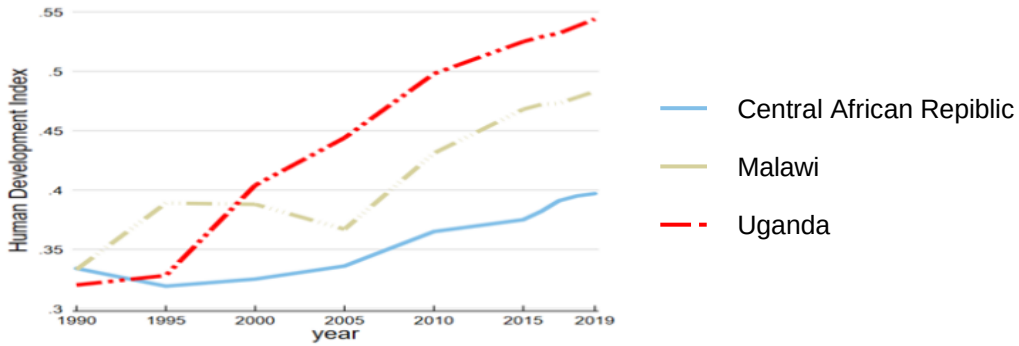
Transport can support human capital formation (cont'd)

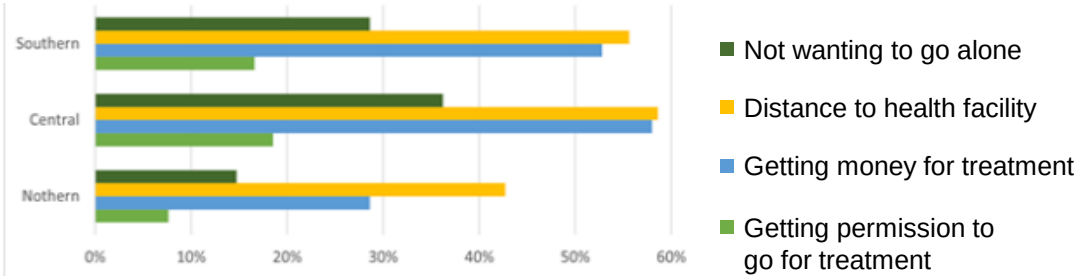
Figure 21: HDI trends for Malawi, Central African Republic and Uganda (2020)



Sources: Human Development Report 2020, UNDP

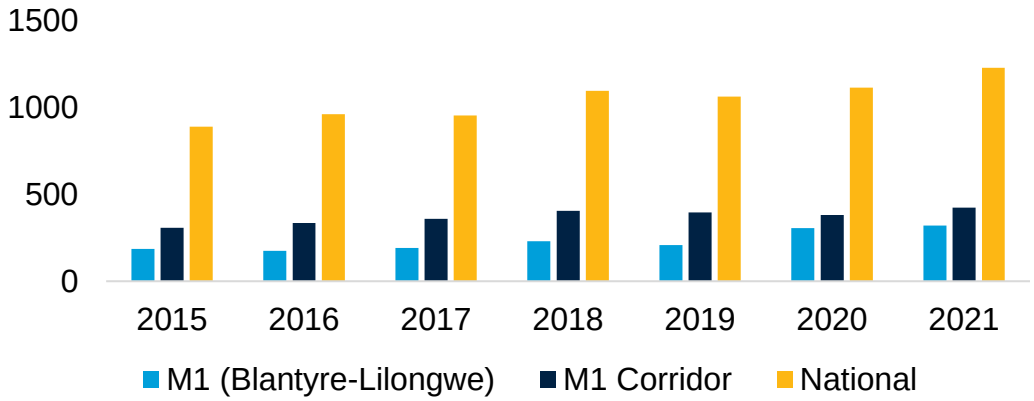
Figure 22: Distance to a health facility is a top barrier for women for seeking treatment (2015-2016)

Problems in accessing health care, percentage of women age 15-49, by region



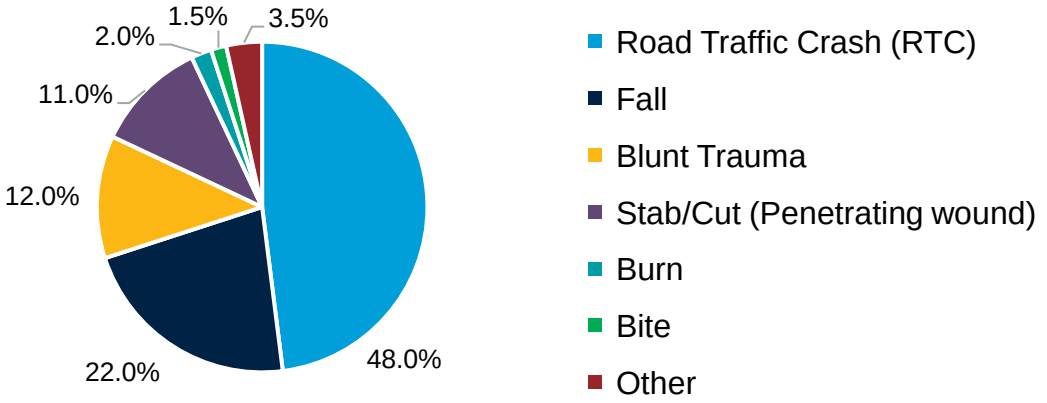
Source: Demographic and Health Surveys 2015-2016

Figure 23: Fatal road crash rates are steadily rising in Malawi (2015-2021)



Source: DRTSS

Figure 24: Malawi hospital trauma admittance (2022)



Source: World Bank, 2022

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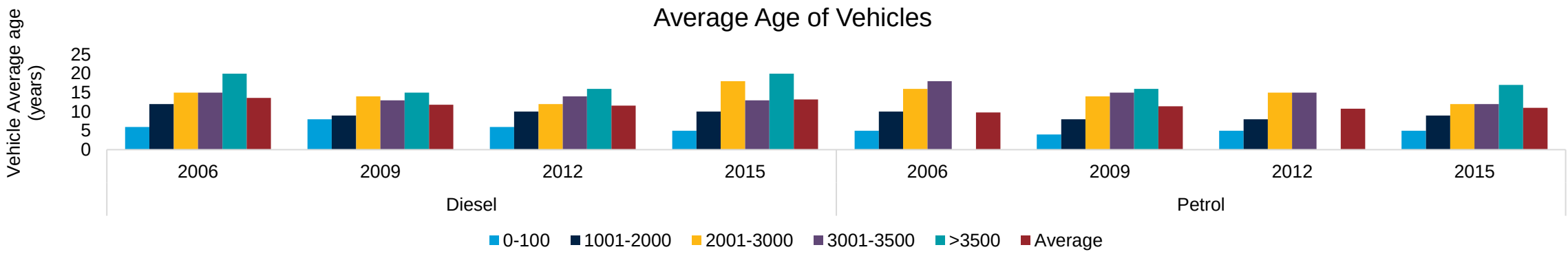
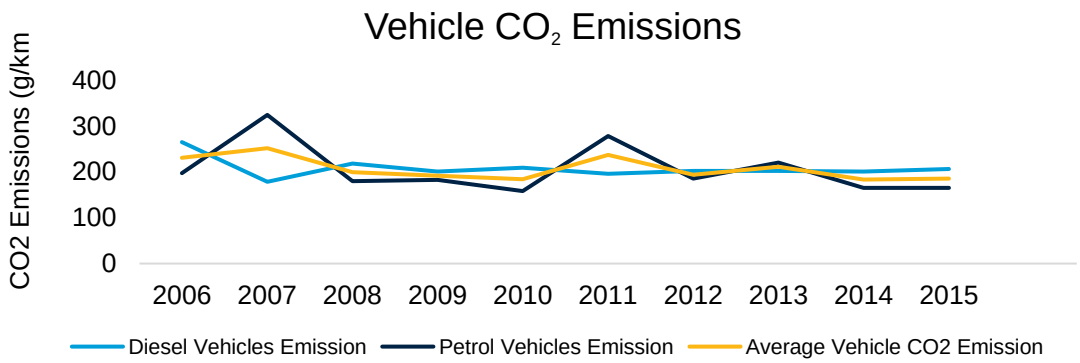
Setting age limitations on imported vehicles, enforcing vehicle emissions and maintenance standards, and transitioning to cleaner fuels is key

Figure 25: Average Age of Vehicles per Engine Capacity (CC, 2006-2015)



Source: https://wedocs.unep.org/bitstream/item/23331/KeyFindingsBAselineStudy.pdf?sequence=2

Figure 26: Annual Vehicle CO2 Emission Chart (2006-2015)



Source: https://wedocs.unep.org/bitstream/item/23331/KeyFindingsBAselineStudy.pdf?sequence=2

Table 7: Vehicle Inventory (2021)

Vehicle Category	Registered vehicles	% of total vehicle population
Motorcycles	14,720	5.1
Light Passengers	181,006	62
Medium Passengers	2,130	0.73
Heavy Passengers	9,287	3.2
Light Goods	43,732	15
Medium Goods	9,315	3.2
Heavy Goods	28,003	9.7
Special	1,661	0.57
Total	289,854	99.5

Source: DRTSS

F G

Enforcing vehicle emissions and maintenance standards, and transitioning to cleaner fuels is key to air quality

Though not yet dire, policies and interventions to improve air quality and reduce emissions are needed

The rate of motorization in Malawi, particularly in its four major cities, is quickly increasing the road sector's contribution to the levels of carbon monoxide (CO), carbon dioxide (CO2), volatile organic compounds (VOCs), and secondary pollutants that lead to poor air quality in built up areas.

Malawi's vehicle inventory reflects an aging fleet. There is a need for minimum age restrictions on imported vehicles, especially second-hand vehicles. Vehicle testing standards, including emission standards, are yet to be adopted and published by the Malawi Bureau of Standards (MBS).

Table 8: CMTIF Activity

CMTIF activity	Timeline	MWKb	$m	Source	Status
Vehicle testing stations in Karonga, Mangochi, and Ngabu	2020-2022	700	0.93	DRTSS and RFA	Nearing completion and commissioning
Vehicle testing stations in urban cities constructed	2022-2023	1,000	1.33	Private sector	11 private VIS in Blantyre, Lilongwe, and Mzuzu
Maintaining existing vehicle inspection stations	2021-2022	90	0.12	DRTSS and Treasury Fund	Funding available

Source: CMTIF (2020-2025)

More detailed studies to determine the effects of vehicle emissions on the quality of life can help raise public awareness and education on local air quality.

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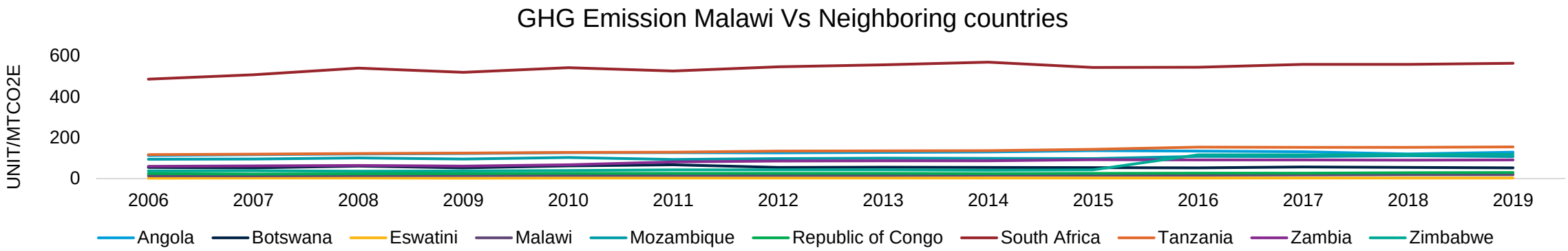
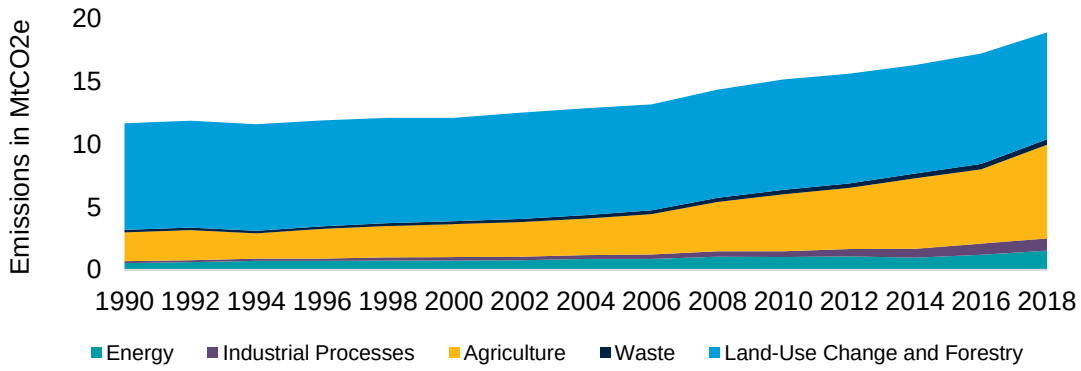
As Malawi's vehicle fleet grows, a focus on emissions abatement is crucial

Figure 27: Comparison of Malawi's GHG Emissions with other Countries (1990)



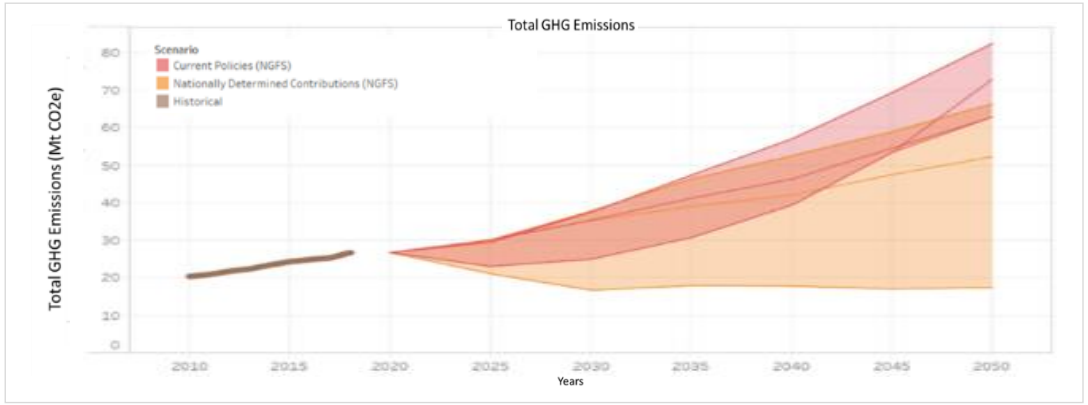
Sources: CAIT and https://www.climatewatchdata.org/ghg-emissions?breakBy=sector&end_year=2019&gases=all-ghg®ions=MWI&start_year=1990

Figure 28: Sectoral emissions comparison in Malawi (2022)



Source: WB/CCDR Report 2022

Figure 29: Malawi emissions projections based on current policies and NDC commitments (2022)



Source: WB/CCDR Report 2022

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Transport

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There is need for a multi-pronged, low carbon growth strategy for greening the future of transport

Transport currently accounts for 11 percent of the total emissions in Malawi's energy sector

Emissions are expected to increase in the coming decades in line with a rise in population; however, the country is likely to maintain a relatively small carbon footprint. GHG emissions totaled 26.8 Mt CO_2 in 2018, with most of the emissions from:

- The energy sector (including biomass combustion), estimated at 9.36 MtCO_2e (including 0.98 MtCO_2e from the transport sector)
- Changes in land-use and the forestry sector, contributing another 8.51 Mt CO_2e
- The agriculture sector emitting 7.46 Mt CO_2e

Under a business-as-usual (BAU) scenario, emissions are forecast to increase more than three-fold by 2040, rising to over 34 million tCO_2e. Much of the predicted increase will be emissions from the energy and transport sector.

Two Nationally Determined Contribution (NDC) targets aim to accelerate the production of biofuels. In 2018, approximately 4 percent of the transport energy demand was met by locally produced bioethanol and biodiesel. Its stated goals include:

- Commercial production capacity of 55 million liters of blended biodiesel fuel
- Increasing ethanol blending for an average national blend rate of 20 percent ethanol (80:20 petrol to bioethanol; 91:9 diesel to vegetable oil), which will depend on:
  - Expanding Malawi's existing biofuel production capacity of roughly 36 million liters by 50 percent
  - Promoting the use of flex vehicles

Achieving these targets may impede agricultural diversification and create a need for additional land and water resources. Expanding the production of sugarcane for feedstock availability, increasing refinery capacity, and investment in distribution equipment to consumers will largely depend on private sector funding. The private sector will also play a pivotal role in driving the incentive mechanisms for fuel conversion kits for existing vehicles as well as advocacy and uptake of new technologies among owners of vehicle fleet and personal vehicles. Its potential implication on fuel prices is not yet evident.

Road sector recommendations

	Pillar	Responsible agency	Timeline for implementation	Criticality
Backbone infrastructure and services				
Develop a National Rural Roads Maintenance Strategy that includes a climate change resilience action plan. Focus on developing the secondary and tertiary road network using the newly adopted low-volume roads manual. Selectively rehabilitate or upgrade roads that maximize all-season access and improve network resilience to gravel or paved standards. Strengthen enforcement of low-volume road standards for accessibility and mobility of vulnerable road users, mainly pedestrians and cyclists.	Finance/ Connectivity	MTPW/MLGRD	Short term	High
Update and adopt a Malawi National Road Safety Strategy. Prepare a multi-sector costed, budgeted, and time-bound National Road Safety Action Plan with specific responsibilities assigned to different stakeholders. Strategic objectives should include introducing road safety audit policies, building knowledge and skills for conducting audits, implementing audit recommendations; provision of emergency medical services for post-crash care, and improving roadworthiness of vehicles through related policies and regulations.	Finance/ Connectivity	Multiple stakeholders	Short term	High
Implement a road asset management system that uses prioritization tools for assessing road network investments. Develop a geo-spatial database capable of capturing transport asset conditions and identifying vulnerable infrastructure. Multi-criteria decision models have the flexibility to be combined with other planning mechanisms such as participatory approaches and adaptable to policy priorities. Balanced investment weightings-based analysis can throw light on aspects of access, safety, and climate resilience.	Connectivity	RA	Short term	High
Align government policy compliant technical and design standards with legal and regulatory standards to ensure quality of road infrastructure. Revise SATTC design, construction, and maintenance standards with a focus on resiliency to meet Malawi's specific requirements. Coordinate through NCIC and university research programs to recognize Malawi's specific geographic, environmental, and operational context for materials. Revise design standards and processes to mandate road safety audits for all high traffic roads and corridors.	Governance/ Connectivity	MTPW	Short term	High
Introduce (output and) performance-based road contracting. OPRC can provide a strategic advantage in the allocation of risk and cost effectiveness. The approach allows budgeting and performance metrics for climate risk and resilience, including contractor rapid response readiness through contingencies for emergency works. It can improve the efficiency of road maintenance practices when secured by sufficient long-term financing, thereby incentivizing private contractors to achieve value for money with a strong focus on asset quality and level of service metrics.	Finance/ Connectivity	RA	Medium term	Medium

Notes: short-term (1–3 years); medium-term (4-7 years)

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Transport

02

Urban transport can boost productivity and growth by connecting people and markets to create agglomeration economies

Transport infrastructure and mobility services are essential for connecting labor and capital within countries. If well planned, they can increase access to jobs, services, and amenities. As countries urbanize, transport and land use policies will become critical for managing sprawl, reducing congestion, and incentivizing agglomeration economies.

Urban mobility management: Connecting people, markets, and creating agglomerations

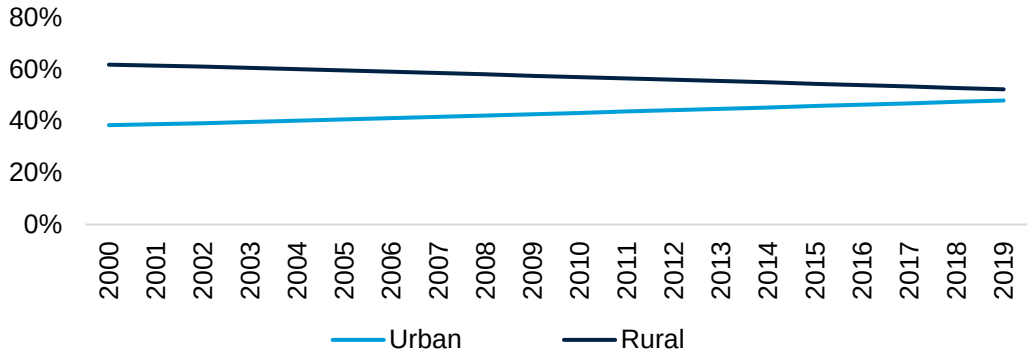
Managing the complexity of urban transport systems will require a clear vision for the sector and an intention to implement public transport service reforms and urban transport infrastructure upgrades

- **Malawi is at the threshold of a period of rapid urbanization.** Over the next decade, the urban population is expected to grow to around 5.2 million, and 13 million by 2050. In 2021, Malawi's total number of urban inhabitants was 3.2 million. It overall urban population share (17 percent) is less than other low-income countries (30 percent).
- **As in many of Africa's emerging cities, including Malawi's urban areas, poor land administration and development controls are allowing low-density urban expansion to turn to sprawl.** The NTMP foresees a requirement of $540 million in urban transport between 2017 and 2037. Transport and land use masterplans at the national, city, and district levels will be critical to improve timeliness, safety, connectivity, and reduce transport costs.
- **National-, city-, and district level transport and land use masterplans need to be updated or developed to increase urban transport efficiency, reduce passenger and freight costs, and improve transport safety.** Policy, planning and investment in non-motorized transport and vulnerable road users must become a top priority to reduce the rising fatalities among pedestrians and cyclists. Insufficient parking accommodations in city and town centers is also a cause for concern.
- **Informal public transport services pose challenges to efficiency, affordability, and safety.** The absence of an Urban Transport Authority hinders the provision of safe, clean, and affordable mobility solutions that ultimately serve Malawi's economy. There is a need for institutional development if local public transport is to improve service quality and user costs.

C

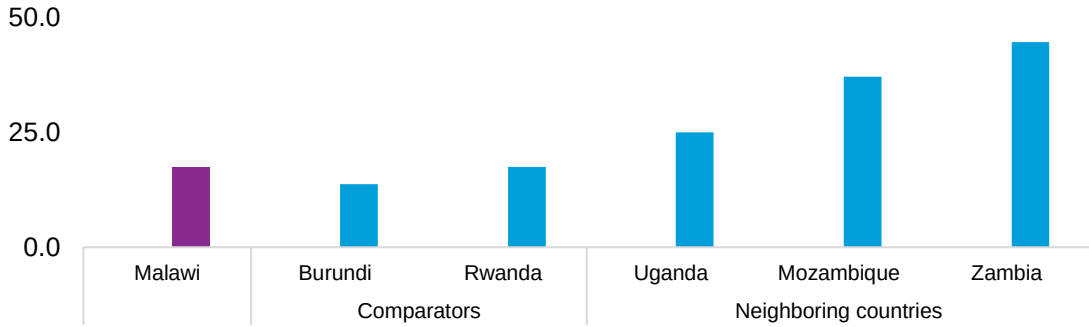
Less than 20 percent of Malawi's population reside in cities, which is below the Sub-Saharan Africa average

Figure 30: Share of Population residing in urban centers (2000-2018)



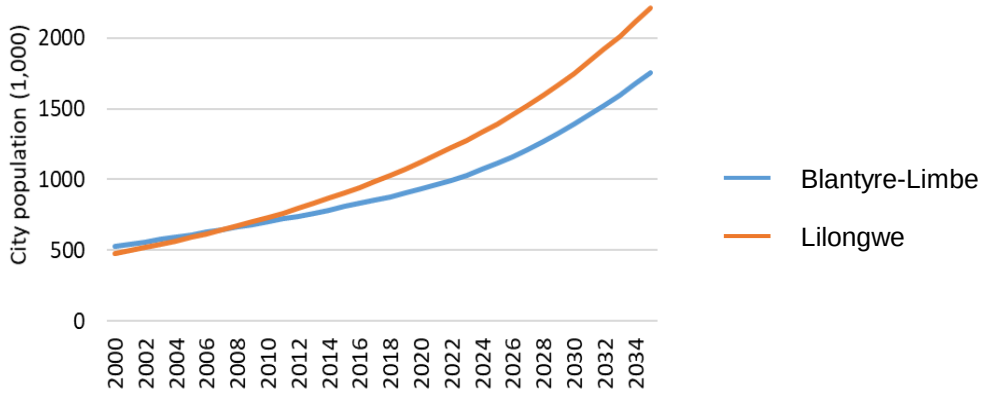
Source: WDI 2020

Figure 31: Malawi Urbanization comparison with Peers (2020)



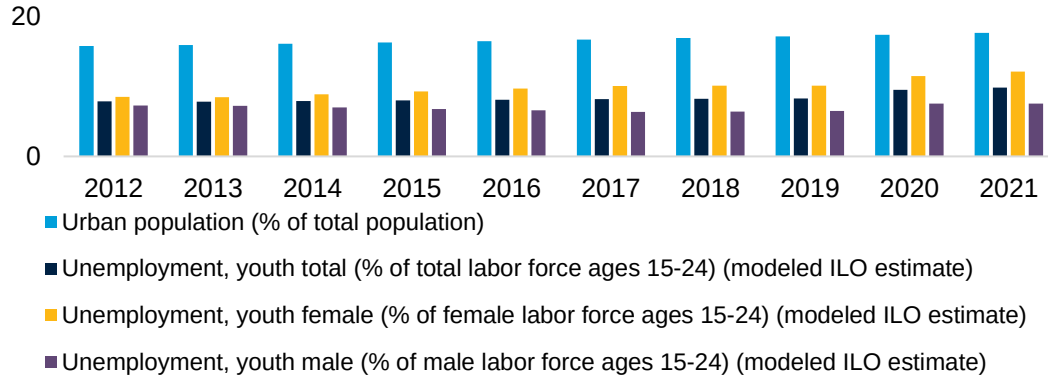
Source: WDI 2020

Figure 32: Lilongw and Blantyre Urbanization Rates (2000-2014)



Source: National Transport Master Plan

Figure 33: Malawi Urban Youth Employment Rates (2012-2021)



Source: WDI 2020

C

Less than 20 percent of Malawi's population reside in cities, which is below the Sub-Saharan Africa average (cont'd)

Rural to urban migration and population growth are accelerating urbanization trends

In Malawi, rural and urban economies do not neatly correspond to agriculture and non-agriculture employment. Almost a third of rural jobs are in the non-farm sectors, while one in every six urban jobs are in agriculture. Urban agriculture mainly involves the production of food crops such as maize and horticulture, which are non-tradable goods and tend to be locally consumed, whereas rural agriculture is more diverse and includes export-oriented, tradable crops like sugar, tobacco, and cotton.

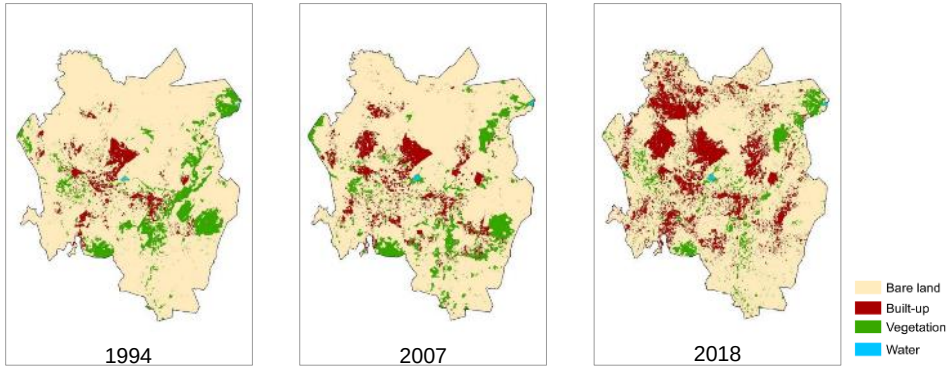
Malawi is experiencing two major trends related to land use planning that are in urgent need of harmonization – rapid population growth and a significant decrease in arable land. If the urbanization and population growth trends hold steady, 13.1 percent of Malawi's total land will be taken over by cities by 2040, and up to 21.2 percent by 2063.

Malawi has a young population, with 40 percent of the population being below 15 years. Access to and creation of jobs will play a huge role in labor participation among young men and women. The Government will have to improve urban service delivery, including mobility, as increased travel demand and vehicle fleet growth will stress road capacity and reliability. Rural population growth will also increase the number of workers in need of employment in the agricultural sector, leading to the division of plot sizes with each new generation.

Malawi’s cities call for cogent land use and transport planning to ensure core infrastructure is delivered in line with population settlements

Poor land administration and development controls allow low-density urban expansion to turn to sprawl

Figure 34: Growth of Informal Residential Areas in Major Cities, 1994, 2007, 2018



Source: An analysis of Urban Land Use / Land Cover Changes in blantyre

The relatively low population density of Malawi's major cities results in longer commutes between residential areas and locations offering off-farm employment opportunities. The demand is mostly made by small, fragmented and low-density urban populations seeking connections to economic opportunities in urban centers. This influences travel costs, especially among the low-income groups dwelling in peri-urban, informal residential areas. Often, this unaffordability drives workers to abandon certain job prospects. Informal, unplanned urban expansion has partly contributed to the growth of smaller, more flexible vehicles that serve public mobility needs over the marginal street and highway networks.

A weak regulatory framework coupled with operational inefficiency, low ranking safety, and weak resilience characterize Malawian urban centers. New residential areas, where most immigrants reside, are being set up in available vacant plots. Accounting for over 70 percent of its urban population, slums have become the dominant form of urban development, creating clusters of small, fragmented, and low-density neighborhoods. (National Urban Policy Malawi). Current urbanization trends are not sustainable as land pressure on the rural areas will increase exponentially to accommodate Malawi’s peri-urban developments.

Meeting urban transport demand will be a central driver of urbanization. A lack of well-prepared development plans reduces the space available for transport infrastructure. When developing new or updated urban master plans for larger cities like Lilongwe, Blantyre, Zomba, and Mzuzu, there must be a study of land value and multi-modal opportunities generated by private sector participation in special economic zones, centralized bus stations, inland ports, and container terminals. Urban greenspaces and landscape management that improve climate resilience and encourage walkability, as well as bike and footpath connectivity, must be considered.

C F G

Public transport is expensive due to structural issues

Regulation of both formal and informal public transport services and ancillary infrastructure is far from ideal

Minibuses dominate the transport landscape in most of cities. There are an estimated 12,300 minibuses operating as public service vehicles. The **Minibus Owner's Association of Malawi (MOAM)** was established to represent minibus drivers and industry interests among their respective enforcement agencies, specifically DRTSS, which is responsible for vehicle registration and roadworthiness, with the MPS overseeing public safety.

Public transport fares are high and difficult to reduce. Lilongwe's minibus fares are almost three times higher than those of Kampala and 50 percent more than in the neighboring capital of Lusaka. Fares are not regulated, although the **Competition and FairTrading Commission (CFTC)** recommends price ceilings. The fares are set by the MOAM, in consultation with the **Passenger Welfare Association (PAWA).** The lack of affordable public transport results in low demand, particularly among low-income households, which, in turn, lowers the overall profit of vehicle owners and operators. Although informal transport is partially self-regulated by the MOAM, there is an acute risk of monopoly due to their dominance among public transport services.

The learning from SSA is that attempts to freeze new licenses for minibuses lead to the growth of illegal taxis and minibuses. Instead of banning the informal transport, adapting it to the broader public transport context may be a more effective approach.

Major reforms are needed to address Malawi's urban mobility needs

Inadequate infrastructure also worsens the environment for public transport safety and operations. The top challenge for Malawi's growing cities is congestion at existing minibus depots, which lack accessible public space to accommodate both passengers and vehicle wayfinding. Bus companies mostly operate from private make-shift terminals, with no integration with other operators, causing significant delays. Shelters and designated stops are few, which leads to unscheduled stops. This environment causes erratic, unsafe operating environments and congestion.

If public transport services are to achieve their access and affordability goals, there should be an urgent integration of informal operations with organized systems through comprehensive regulatory reforms. Formal public transport network structures with proper routes and catchments, service standards with published schedules, and affordable or subsidized fares will be critical to address urban congestion in Malawi's growing cities (see Box 4). Introducing controlled competition for the right to operate specified services over a defined network would require the operating industry to restructure into some form of a legal entity such as cooperatives or associations. Both national and local governments need to come together to strengthen the relationship between urban development and provision of public transport services.

Box 4: Urban public transport management: Institutional development and regulatory reforms are prerequisites for modernizing Lilongwe's transit services

The NTMP clearly identifies the need for a national Urban Areas Transport Authority (UATA), with specific powers to plan, coordinate, and grant licenses and concessions to the appropriate public transport operators. Malawi urgently needs to develop a public transport regulatory framework and an empowered authority to manage its implementation. The authority must be responsible for the overall coordination with the respective city assemblies to address urban mobility and road safety together, identified through citizen-informed design tailored local plans for integrated land use and development control. Institutional reform of bus operations entails:

- Capacity building within both national and city authorities
- The establishment of a legal and organizational basis for better regulation of service standards
- The implementation of standards in combination with capital improvements to facilities (depots and bus stops) that connect pedestrian and bicycle networks in respective urban areas

Though Lilongwe is identified as a preferred location to develop a bus-rapid transit (BRT) system, its success will depend on institutional arrangements, proper organization of feeder routes, and well-structured contracts or concessions for services. An initial BRT scheme is advocated for 20 km along the M1 through the city, connecting the employment centers of Kanengo and Old Town to the residential zones or Area 25, Area 47, and Area 49, as well as National Stadium and retail areas of Crossroads and City Mall. Examples in SSA illustrate that capital, operational, and maintenance funding sourced from fare revenue and public subsidies is often insufficient to ensure the long-term sustainability of these systems.

Piloting of dedicated bus lanes may offer a near-term opportunity to first demonstrate the possibility of more efficient public transport services, without requiring significant infrastructure investments typical of BRTs. Dedicated BRT infrastructure is often capital intensive, while BRT system designs generally entail operationally complex services over longer lifespans of ancillary infrastructure asset. Closed systems and tight specifications for rolling stock offer little flexibility when underperformance becomes a challenge to the sustainability of operations. Many cities in SSA, including Lagos, Kigali, and Dar es Salaam are now planning BRT-lite or priority bus lanes, which can provide a lower-cost approach to full-scale BRT and feeder network development. Dedicated bus lane projects may still entail road infrastructure upgrades, open lanes and stations, and kerb-side boarding. There could also be cost-effective bus fleet modernization programs, which will ultimately require fewer resources to manage operations. These approaches can keep establishment and operating costs low, and later be developed into a full-BRT system.

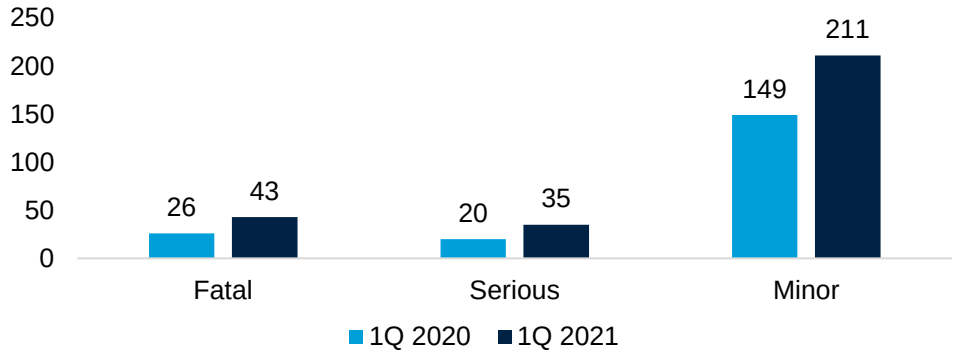
G

Urban transport development must include a focus on bicycle and pedestrian safety

Figure 35: Pedestrian road traffic incident location in Lilongwe

Source: Geographical Mapping of Road Traffic Injuries in Lilongwe, (2021)

Figure 36: Impact of the Growth of the Kabaza Fleet on Road traffic Crashes, 2021



Source: Police report 2021

A Non-motorized Transport Policy can significantly improve the safety and social equity of infrastructure designs

Road traffic incidents continue to increase in urban areas. In Lilongwe, 96,697 patients with road traffic injuries were recorded in the Kamuzu Central Hospital Trauma Registry between 2015 and 2019, with the number rising each year. The highest number of injuries occurred to pedestrians (32.3 percent) and cyclists (28.2 percent). Persons that were struck despite being within painted zebra-crossing led to significantly more serious and fatal injuries, which points to the importance of speed management and designation of priority when vulnerable road users are crossing roads.

Investment in pedestrian facilities is a priority to enhance transport safety needs and quality of life. The ability to walk safely in urban areas should be central to urban planning. Though walking remains a dominant transport mode in both rural and urban settings, the attention given to facilities for pedestrians has historically been poor, as motorized vehicles are given greater priority. A Road Safety Design Manual is available but needs to be mainstreamed into projects.

Kabazas (bicycle taxis) are increasingly used as an alternative means of urban transport. More than half the kabaza operators are not registered, mainly because of the high license and registration fees. Most bicycles/motorcycles are operated by the least wealthy groups, since preparation and maintenance cost are low. As bicycles often share the same carriageways with motorized vehicles, they generate additional challenges to road space and safety, especially when road infrastructure and motor vehicle drivers do not deem cycling as a priority or safety consideration.

Though urban road management may be decentralized to local authorities, the DRTSS remains a key stakeholder in the design of urban roads. Data-driven decisions on remediating dangerous locations should be a clear objective of the DRTSS' contributions to informing designs.

C F G

Tourism and trade are prominent themes within the MW2063 urban development agenda

Transport infrastructure is expected to facilitate travel and tourism, enabling the industry to grow

Malawi's tourism attraction is based on its geographical natural diversity and cultural heritage. Most accommodations tend to be concentrated around well-connected geographical areas. Lodging and travel services catering to tourists are likely to generate agglomeration economies that will benefit these establishments in the form of labor mobility within the hospitality sector. Connectivity to sites of regional attraction, along with higher value offerings, could encourage private investments in lodging and services, attracting business travelers and visitors (see Box 5).

Meetings, Incentives, Conferences, and Exhibitions (MICE) tourism plays a crucial role in the industry, particularly for multilateral and global organizations operating in Malawi. Travel and tourism operators cited transport infrastructure constraints among the major productivity handicaps faced by Malawian firms.

Table 9: Recent Tourism Trends, 2010-2019

Year	International tourist arrivals	International tourism receipts ($m)
2010	746,000	45
2011	767,000	36
2012	770,000	35
2013	795,000	33
2014	819,200	36
2015	804,900	39
2016	823,500	30
2017	837,200	35
2018	871,000	43
2019	886,109	47

Source: National Planning Commission (Malawi), Copenhagen Consensus Center, and the African Institute for Development Policy

Urban areas as a travel destination can capture value additions through tourism and trade

The importance of air connectivity for tourism also remains a pivotal factor. Prior to the COVID-19 pandemic, travel and tourism accounted for 6.7 percent of the GDP ($523 million), and 6.8 percent of employment (526.000 jobs), according to the World Travel & Tourism Council (WTTC). International tourism is far more relevant than domestic tourism, with the former representing 91 percent of tourism spending and an important source of foreign exchange.

Tourism has steadily increased the number of international air passengers. International tourist arrivals grew at 7.7 percent per year between 2000 and 2018, reaching 870,100 arrivals in 2018. Additionally, the air cargo market, though relatively small, is crucial for importing manufactured goods, textiles, electronic supplies, and pharmaceutical products; while exports comprised mostly perishable agricultural products, particularly mangoes and fish. Concentrated at Kamuzu International Airport (which accounted for 87 percent of cargo), air freight reached 6,700 tonnes in 2019, with Chileka International Airport moving the remaining volume. Inbound air cargo accounted for 90 percent of trade volumes.

Several urban transport and trade metrics are identified in the MW2063 investment plans. There have been significant efforts to mobilize private capital or foster PPP to develop freeport facilities at key international and regional airports, including Kamuzu (Lilongwe), Chileka (Blantyre), and Mzuzu Airport. Additionally, MW2063 considers rehabilitation of the Mzuzu terminal and runway to meet international safety standards an important metric for boosting tourism in the northern lake region.

C F G

As trade corridors pass through the urban core of Malawi's major cities, secondary cities' planning is critical to integrate urban and rural economies

Export and transit traffic is generating friction with local urban traffic patterns causing congestion

All key corridors pass through the central urban areas of Lilongwe, Blantyre, Zomba, and Mzuzu. The combination of international, intra-city transport, and urban traffic in central business districts increases congestion but this also means that the total number of motorized trips are expected to rise dramatically with the projected growth in the vehicle fleet. There is inadequate highway capacity and connecting road infrastructure to deal with this rise.

Planned bypass routes have been developed but implementation has been sporadic. To separate pass-through and urban transport demand, bypasses need to be provided to ensure adequate road capacity is reserved for public transport.

Table 10: CMTIF-planned Bypasses in Major Cities, 2020-2025

Name	Km	$ (m)	MKW (b)	Status
Blantyre bypass	97	92.15	69.11	Fund not available
Lilongwe east bypass	38	36.10	27.07	Fund not available
Lilongwe west bypass	12	11.40	8.55	Fund not available
Mzuzu bypass	30	28.50	21.38	Fund not available

Source: CMTIF

Urban master plans must provide infrastructure to accommodate public and private development, while simultaneously focusing on meeting both motorized and non-motorized transport demand. Urban transport investments in improving streets, access to formal public transport facilities, pedestrian walkways, and streetlights, should also be used to establish or integrate solid waste management, as well as sewage and wastewater treatment infrastructure as part of the built environment, where feasible.

Secondary cities will need to accommodate populations in peri-urban areas to access essential services. Facilitating quality and accessible low-income housing through land pooling or sites-and-services zones near corridors, or job clusters with all services provided, including transport coverage, can discourage the growth of informal areas. Already existing informal settlements should be formalized and upgraded to reduce exposure to flood hazards in these locations.

Planning of secondary cities must focus on sectoral integration and multi-purpose infrastructure. The main challenge in the planning of secondary cities is the decentralization of urban development in a manner that supports Malawi's overall economic development, while managing spatial development and transport linkages within the urban network. The adoption of a low-carbon, compact development model and corresponding master plans and land use plans, and connecting them closely with road and public transport investments can set the foundation for supporting various land use patterns.

Malawi 2063 flagship project

Box 5. Malawi Lakeshore Development Program

The MW2063 Five-Year quick win intervention areas for urbanization place a heavy premium on tourism potential. A flagship Malawi Lakeshore Tourism Development Program relies primarily on a major public investment in road infrastructure to provide access to Lake Malawi. Additional incentives for the private sector to finance facilities and services across the lakeshore areas anticipate attracting a mix of hotels and conference centers, in and around **Mangochi, Liwonde, Karonga, Nkhata Bay, and Salima.** The **Malawi Tourism Investment Masterplan** also suggests primary lakeshore tourism developments in **Nkhotakota**, taking into consideration their connection to the nearest regional urban centers, while promoting the concentration of tourism infrastructure. As many of the areas of tourist attraction currently lack good transport infrastructure, decent accommodation, and reliable water, electricity, and telecommunication services, investment in the tourism sector has the potential to catalyze infrastructure connectivity while creating job opportunities across the tourism value chain, especially in some rural enclaves.

A Malawi Secondary Cities Plan: Spatial Guide for Development assesses infrastructure connectivity across exiting or underutilized modes by grouping and scoring larger settlements' prospects for accommodating urban economic development. Critically, important multi-modal locations such as **Chipoka**, and **Liwonde** present unique opportunities for water and rail links. Transportation initiatives in secondary cities such as **Bangula, Karonga, Nsanje, Monkey Bay** and **Chilumba** also offer access as potential strategic transport hubs within the broader urban development planning context. A Hub-and-Spoke Model around regional gateways provides a nexus for clustering of tourism destinations and packages that are served through these locations.

These clusters are envisaged as communities of inter-related activities supported by transport and other key infrastructure. Hence, the model is envisaged to spur regional growth and facilitate private sector investment in the hospitality industry, thus ensuring efficiency in services, while also fostering agglomeration of economic infrastructure. Secondary city planning, together with the lakeshore tourism development goals, can benefit business operators with access to essential infrastructure while avoiding investment overlap.

NTMP Projects Supporting Tourism

	Major Access Point	*Transport Connectivity*
Lake Malawi	Nkhata Bay	M5 Road, Lake Services
	Salima	M14 and S122 Roads
	Mangochi	M10, Air Transport
	Monkey Bay	M10 and S128 Roads, Lake Services
	Nkotakota	M5 Road, Lake Services

Source: National Transport master Plan

Urban transport recommendations

	Pillar	Responsible agency	Timeline for implementation	Criticality
Urban mobility management				
Define the institutions and mechanisms regulating and planning urban mobility by empowering a National UATA, with specific mandates to plan, coordinate, and grant licenses and concessions to appropriate public transport operators. Strengthen the role of municipalities regarding planning and funding of urban mobility and enhance interagency co-ordination with key agencies in charge of road safety and environmental regulations/vehicle standards.	Governance	MTPW/ Local councils	Short term	High
Registration of informal public transport, formalization of routes, and implementation of adequate stops for easy transit, road safety, and social inclusion. Introducing controlled competition schemes by routes can facilitate organized service delivery.	Connectivity	MTPW/ DRTSS/ Local councils	Short term	High
Develop a NMT Strategy and Action Plan. Institute complete streets program in urban enclaves. Given the prevalence of walking, focus on improved facilities, including sidewalks, crossings, pedestrian signals, kerb extensions. Promote bicycle lanes, streetscapes, and landscape treatments to green urban corridors. Integrate public transportation planning for bus lanes and bus stops, median islands, and traffic-calming measures to include all road users.	Finance/ Connectivity	MTPW/ DRTSS/ Local councils	Short term	High
Update or develop master plans to improve land use and transport synergies in the largest urban settlements. Integrated planning is crucial to prevent sprawl and preserve arable lands through land registration and effective zoning. Planning must connect central business districts and residential districts (especially peri-urban areas) with reliable, quality public transport services. Traffic demand management improvements such as regulations for peak/off peak heavy vehicle traffic and light infrastructure projects to regulate traffic can be rolled out in all major and emerging secondary cities.	Finance/ Connectivity	MTPW/ Local councils	Short term	High
Properly plan and implement centrally coordinated public transport terminals in major cities. There are urban transport project opportunities with PPP or private sector participation, including small-sized investments. These opportunities can be developed and financed by local market players (investors, operators, bus companies) and/or commercial borrowing. The investments can be channeled towards developing mini-buses, bus terminals, and car parking facilities, particularly in Malawi's largest cities.	Governance/ Connectivity	MTPW/ PPPC/ Local Councils	Short term	Medium

Notes: short-term (1 – 3 years); medium-term (4 – 7 years)

WORLD BANK GROUP
Transport

03

An efficient multi-modal transport system can aid Malawi's transition to a land-linked economy

Multimodal connectivity and logistics underpin Malawi's ability to facilitate trade and the movement of both goods and people. Sound regulatory frameworks that prioritize access and competition across all modes can unlock economic potential and reduce transport costs. A modal shift in passenger transport and freight remains central to reducing transport emissions.

Multimodal Integration: Competition to create value

Transitioning Malawi from a landlocked to a land-linked economy

Malawian firms and citizens face high transportation costs because of its landlocked geography and an underdeveloped and poorly integrated multi-modal transport system. Improved inter-modality linking surface (rail and road), water, and air transport is necessary to increase Malawi's access to domestic, regional, and global markets. Modal shift objectives figure prominently in Malawi's updated Nationally Determined Contribution targets. Beyond roads, the 20-year investment horizon in the NTMP envisages about $3.3 billion in maintenance and capital investment in the development of railways ($2.3 billion) and air ($718 million) transport infrastructure, which are the priorities, while inland water transport and regional connectivity too will need significant investments ($220 million).

The Ministry of Transport and Public Works' primary mandate is to develop and ensure the implementation, monitoring, and evaluation of the state's general policy on land, water, and air transport. Overall, the transport regulations are not well enforced despite the adoption of regional or international standards due to weak implementation capacity and oversight. Both rail and waterways need an independent regulator and institutional strengthening to improve sector governance. Air transport can also accelerate its pace of policy and institutional reforms, including its ability to attract private sector investors.

Meeting regional and international trade and development policy commitments for the movement of goods and people will be reliant on open and fair competition and improved economic regulatory regimes. Malawi appears to rank relatively well on the logistics performance index among land-locked regional peers. As a founding member of COMESA and a member of SADC, effective and timely implementation of regional commitments to harmonize regulations and streamline transit mechanisms would create security for investors and improve access for Malawian firms.

C F G

Transport costs along Malawi's four main overland corridors have fluctuated in recent years

Table 11: Costs by Corridor to and from Lilongwe ($/TEU)

Corridor		Imports		Exports	
Year		**2018**	**2021**	**2018**	**2021**
Gateway (Port) Costs (USD/TEU)					
Beira – Lilongwe	↑	514	557	414	463
Dar es Salaam – Lilongwe	←	595	595	395	395
Durban – Lilongwe	↓	624	553	435	394
Nacala – Lilongwe	↓	595	557	586	514
Way (Road and Rail) Costs (USD/TEU)					
Beira – Lilongwe	↓	2 700	2 325	1 500	1 325
Dar es Salaam – Lilongwe	↓	4 700	3 305	4 055	2 575
Durban – Lilongwe	↓	4 965	4 450	3 800	2 900
Nacala – Lilongwe (Road)	↓	2 976	2 795	2 587	1 395
Nacala – Lilongwe (Rail)	↓	1 760	2 897	2 349	1 340
Total (Gateway + Way + Logistics) Costs (USD/TEU)					
Beira – Lilongwe	↑	3214	3497	1914	2003
Dar es Salaam – Lilongwe	↓	5295	3900	4450	2970
Durban – Lilongwe	↑	5589	8788	4235	4449
Nacala – Lilongwe (Road)		3571	↑ 3912	3173	↓ 2699
Nacala – Lilongwe (Rail)		2867	↑ 3492	2935	↓ 2369

Source: Trade Mark East Africa (2022)

Malawi's transport costs are among the highest in the region

Long distances to seaports and over-reliance on a road transport network in poor condition makes transportation expensive for Malawi's traders. Infrastructure conditions significantly affect the cost of transportation due to the increased wear and tear and higher operating costs. The high cost of internal freight transport also has a major impact on agricultural commercialization given the low value of most unprocessed agricultural produce.

Malawi faces high transit charges to access its four main corridors – Nacala (Mozambique), Beira (Mozambique), Durban (South Africa), and Dar es Salaam (Tanzania). In 2020, 75 percent of the import and 80 percent of export traffic was handled at Beira and Durban Ports (see tables 14, 15, 16). All freight flows to and from Beira Port are conducted by road, as shippers prefer it for its affordability and relatively short distance, while Durban remains attractive due to the higher efficiency of its port operations.

Malawi's high logistics costs are due to structural and regulatory problems. Some major inefficiencies that resulted in higher logistics costs are due to the poor organization of the road transport sector and the lack of competition when fixing transit transport prices.

CG

Intra-regional, multi-modal transport corridors present an opportunity for data-driven decisions among corridor management institutions

Corridor performance measurement and monitoring tools can enhance visibility and help unlock trade and logistic bottlenecks

There is an increasing focus on better multi-modal coordination in Malawi to achieve its stated goals of reducing trade costs and improving transport affordability. To this end, a **National Logistics Forum** was established in February 2022 with representation from all major players in the logistics industry. It is also creating a Logistics Strategy to help develop, agree upon, and monitor performance metrics beyond road transport to improve rail and waterway trade flows.

Table 12: Participating States and Corridor Management Institutions

Corridor	Participating states	Corridor management institution
North – South corridors (includes Dar-es-Salaam and Durban corridors)	Botswana, DRC, Malawi, South Africa, Tanzania, Zambia,, and Zimbabwe	Dar es Salaam Corridor Committee Agreement signed by Zambia, Malawi, and Tanzania but the Secretariat is no longer functioning
Central corridor	Burundi, DRC, Rwanda, Tanzania, and Uganda	Efforts by Malawi and others to join the Central Corridor Committee (based in Port of Dar es Salaam)
Nacala and Beira corridors	Malawi, Mozambique, and Zambia	Nacala Development Corridor Management Committee Agreement signed by all parties
Mtwara corridor	Malawi, Mozambique, Tanzania, and Zambia	Mtwara Development Corridor Management Committee Agreement signed by all parties

Source: TMEA Baseline Report (2022)

In 2022, a Nacala Development Corridor Management Committee was established. With an overarching objective of increasing corridor use, the committee is tasked with jointly agreeing on a framework for monitoring corridor performance, developing and coordinating corridor improvement initiatives, and ultimately fostering economic and social development along the corridor. A preliminary set of key metrics is currently under evaluation.

Table 13: Changes in Freight Flows on the Beira Corridor, 2016-2020

Corridor	Beira							
Year	2016		2020		2016		2020	
Metric	Tonnes	%	Tonnes	%	Road	Rail	Road	Rail
Exports	244,000	44%	319,000	54%	100%	0%	100%	0%
Imports	706,000	30%	983,000	34%	100%	0%	100%	0%

Source: TMEA Baseline Report (2022)

Table 14: Changes in Freight Flows on the Durban Corridor, 2016-2020

Corridor	Durban							
Year	2016		2020		2016		2020	
Metric	Tonnes	%	Tonnes	%	Road	Rail	Road	Rail
Exports	196,000	35%	183,000	31%	100%	0%	100%	0%
Imports	1,266,000	54%	1,160,000	41%	100%	0%	100%	0%

Source: TMEA Baseline Report (2022)

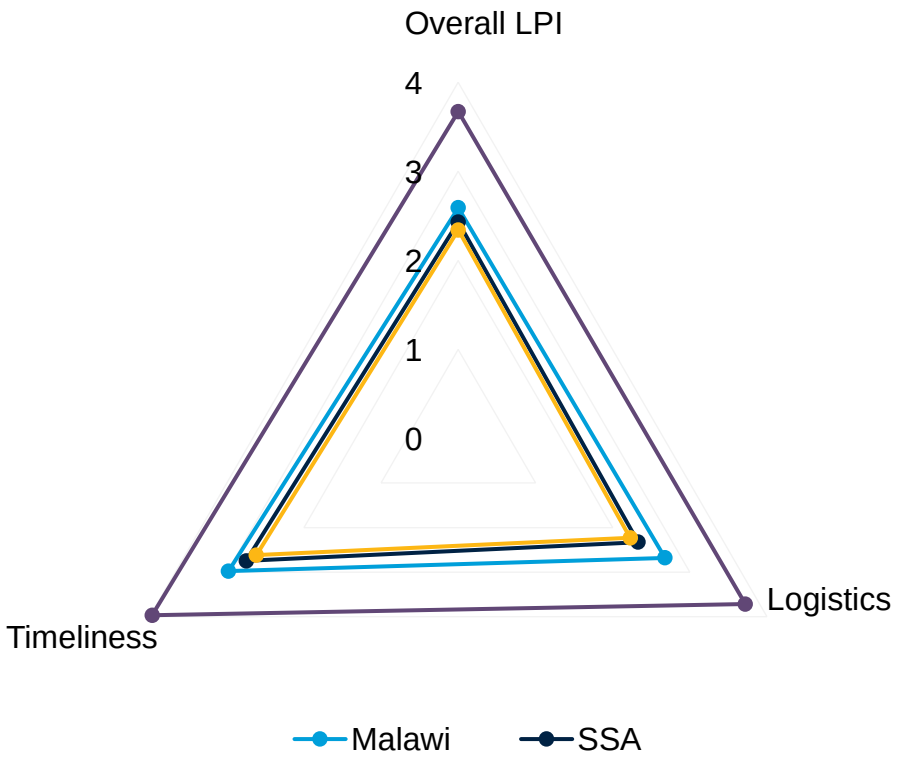
Table 15: Changes in Freight Flows on the Nacala Corridor, 2016-2020

Corridor	Nacala							
Year	2016		2020		2016		2020	
Metric	Tonnes	%	Tonnes	%	Road	Rail	Road	Rail
Exports	56,000	10%	32,000	5%	0%	100%	0%	100%
Imports	186,000	8%	253,000	9%	15%	85%	25%	75%

Source: TMEA Baseline Report (2022)

LPI indicators show that Malawi's performance is slightly better than the regional and low-income medians

Figure 37: Malawi regional LPI comparison of SSA average



Source: LPI

Figure 38: Firms identifying transport as a major constraint (%) (2018)

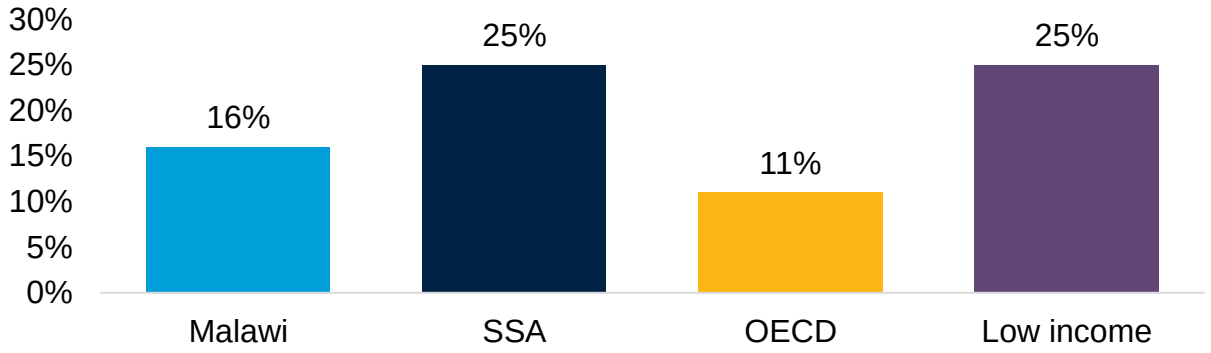
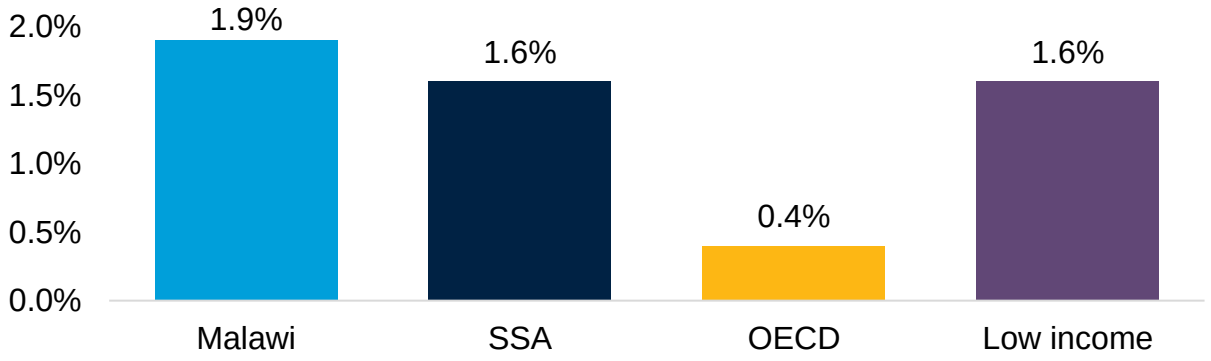


Figure 39: Products lost by firms during shipping to domestic markets (%) (2018)



Source: Logistics Performance Index (2018)

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LPI indicators show that Malawi's performance is slightly better than the regional and low-income medians (cont'd)

Despite its importance, the quality of logistics and related services has stalled

Table 16: Comparison of LPI by Component (2018)

Country	LPI Rank	LPI Score	Customs Rank	Infrastructure Rank	International Shipments	Logistics competence	Tracking and tracing	Timeliness Rank
Malawi	97	2.59	2.43	2.18	2.55	2.68	2.67	2.97
South Africa	33	3.38	3.17	3.19	3.51	3.19	3.41	3.74
Zambia	111	2.53	2.18	2.30	3.05	2.48	1.98	3.05
Region: SSA		2.45	2.27	2.20	2.52	2.39	2.50	2.77

The 2018 Logistics Performance Index highlights the challenges in the provision of quality infrastructure necessary to support trade and transport. These challenges resulted in Malawi ranking 97 out of 160 countries. A lower percentage of firms identify transport as a major constraint (16 percent) compared to the SSA benchmark (25 percent), though firms also report a higher percentage of losses due to breakage and spoilage than comparators.

Malawi's trucking industry is identified in the Country Private Sector Diagnostic as a major obstacle to competitive transport pricing. Competition in inter-urban goods transport reflects co-ordination among major brokers in agreeing upon prices in the domestic market and restricting foreign cabotage through bilateral agreements. Eight major multinational players appear to dominate the logistics sector, together with three large domestic trucking companies, among the likely 150 registered clearing and forwarding agents in Malawi.

Table 16. Major Stakeholders in Malawi's Cross-border Transport (2017)

Clearing and forwarding	Bollore Africa, Combine Cargo, TransMam, UTI, Bridge Shipping, CWT-Aquarius Shipping International, Manica, Alliance
Transporters—all goods	J & J Africa, AS Investments, Trans-Tech
Associations	Clearing and Forwarding Agents Association of Malawi (CAFAAM); Transporters Association of Malawi

Source: Vilakazi, Thando; Paelo, Anthea (2017)

Malawi's ASCUYDA trade data and trader surveys reflect persistent delays in the release of both imports and exports

Table 17: Average Time to export (hours)

%	Minutes	h m d	
10	1720	1d 4h 40m	
20	3026	2d 2h 26m	
30	3227	2d 5h 47m	
40	4290	2d 23h 30m	
50	4647	3d 5h 27m	
60	5856	4d 1h 36m	
65	**6800**	**4d 17h 19m**	← **average**
70	7080	4d 22h 0m	
80	8872	6d 3h 52m	
90	12755	8d 20h 35m	
100	155859	108d 5h 39m	

Source: ASYCUDA

Table 18: Average Time to import (hours)

%	Minutes	h m d	
10	283	0d 4h 43m	
20	1150	0d 19h 10m	
30	1410	0d 23h 30m	
40	2220	1d 12h 59m	
50	3940	2d 17h 40m	
60	5400	3d 17h 59m	
70	7730	5d 8h 50m	
75	**13563**	**9d 10h 4m**	← **average**
80	24823	17d 5h 43m	
90	37574	26d 2h 14m	
100	211805	147d 2h 5m	

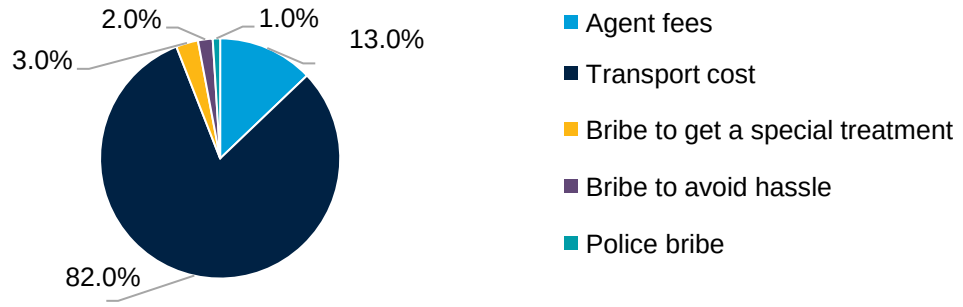
Source: ASYCUDA

Table 19: Malawi Trader's survey: Median time at border (from arrival to clearance)

Corridor	Median at border time (days)
Border with Mozambique	2,71
Border with Tanzania	1,69
Border with Zambia	1,49
Chileka International Airport	3,80
Kamuzu International Airport	3,40
Other	3,05

Source: Development Impact Evaluation (DIME) survey on Malawi traders

Figure 40: Malawi Trader's survey: Distribution of costs in cross border trade



Malawi's ASCUYDA trade data and trader surveys reflect persistent delays in the release of both imports and exports (cont'd)

Complementary policies, coordination, and investment that reduce friction at borders are central to increasing competitiveness

There are ongoing efforts to reduce trade and transportation barriers along Malawi's main regional corridors with the promotion of One Stop Border Posts (OSBPs) at the continental level. Efforts are underway to reduce the time for imports and exports and increase the efficiency of information flows. Trader surveys conducted by the World Bank's Development Impact Evaluation (DIME) reveal that transport costs is the most significant cost element.

In 2020, the Ministry of Trade endorsed a blueprint for the implementation of a Malawi National Single Window (NSW). The NSW will create a user-friendly electronic system, with simplified, efficient, and harmonized trade procedures, including minimal documentation for improved coordination and reduced interaction among government agencies. The NSW will provide 24X7 access and capability, accelerate throughput at border posts and inland examination centers, and smoothen revenue collection to boost exports and hasten imports. A first phase rollout across six agencies is expected to commence in 2023, and shortly thereafter, a second phase to connect all relevant government stakeholders.

In 2022, the Government assented to the Malawi OSBP Act, the enabling legislation to operationalization OSBPs. Several OSBPs are at various stages of upgrades. The OSBPs will provide critical infrastructure that supports trade facilitation and reduces import and export times. The Mchinji-Mwami OSBP (financed by AFDB) is operational, while OSBPs at Dedza and Mwanza (financed by WB) are at an advanced stages of construction. The OSBP at Kasumulu (Tanzania) has been completed and the designs for the Songwe facilities upgrades are expected to commence in late 2022. OSBP facilities at Muloza are also planned for 2023.

Regional agreements aim to harmonize road transport policies, regulations, and systems to improve cross-border vehicular operations

COMESA-EAC-SADC Tripartite Agreements on axle load control and vehicle licensing have been developed

The Tripartite Transport And Trade Facilitation Programme (TTFP) seeks to attain four key results:

I. Implement a vehicle load management strategy in the Tripartite Region

II. Harmonize vehicle regulations and standards in the Tripartite Region

III. Implement Integrated Transport Registers & Information Platforms and System to facilitate the exchange of traffic-related information among Tripartite member and partner states

IV. Improve efficiency of regional transport corridors

Tripartite Multilateral Cross Border Road Transport Agreement (MCBRTA). Many states, including Malawi, have made advancements in license and registration requirements. Uganda and Namibia have started issuing a new Tripartite-compliant driving license. Angola, Djibouti, DRC, Ethiopia, Kenya, Tanzania, Lesotho, South Africa, and Zimbabwe too are in the process of developing and introducing a Tripartite-compliant driving license and/or components of a compliant National Transport Information System.

Malawi needs to amend national legislation in accordance with the Vehicle Load Management Agreement

Vehicle Load Management Agreement (VLMA). Angola, Eswatini, Ethiopia, Kenya, Lesotho, Namibia, Rwanda, the United Republic of Tanzania, Uganda, Zambia, and Zimbabwe have adopted model laws and regulations. The TTTFP reports that, in 2016, the overload fees of Malawi are, on average, double the fees agreed on by the Tripartite. The regulations are not explicit on how fines are calculated.

The **DRTSS** is currently reviewing its Vehicle Load Control Strategy (2016-2021) to formulate an updated five-year implementation strategy (2023-2028). DRTSS operates seven permanent weigh stations at Mchinji, Songwe, Muloza, and Mwanza border posts, with inland facilities at Balaka, and Lirangwe. The Songwe and Mwanza stations are expected to be relocated, in line with Government directives to reduce the number of agencies operating within the border posts. An additional fixed inland weighbridge at Nkhotakota is nearing completion, while new stations at Rumphi, Dedza, and Liwonde are under construction. All stations are to adopt specifications outlined in the Regional Weighbridge Location Plan (2017) to ensure coordinated deployment in the Tripartite Region. The MTPW aims to link all weighbridge stations to an upgraded **Malawi Traffic Information System (MalTIS),** enabling online, real-time data access from various sites around the country. The **Malawi Bureau of Standards (MBS)** inspects and verifies weighing instruments, as well as tests and certifies that weigh scales are calibrated at least once a year.

C F

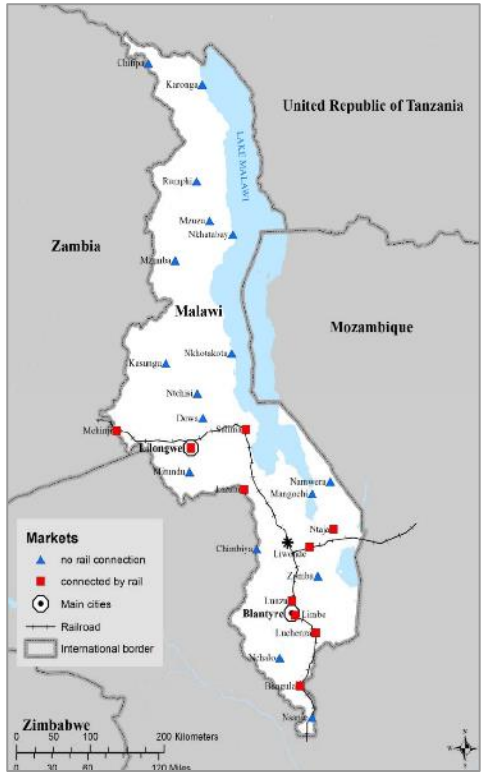
Regional and domestic railway connectivity to major ports and facilities is limited, diminishing prospects of efficient and affordable freight transport

Malawi's railway density is low and service efficiency deemed poor

The railway network in Malawi is an unelectrified, single-track cape gauge (1067mm) line, totaling 932.5 km.

- The East-West section of Kachas-Nkaya-Nayuchi (235.5 km), which is a part of the Nacala corridor, operates 20.5-tonne axle load capacity. The western segment (136.5 km) connects to Moatize (Mozambique). The line intersects with the North-South section at Nkaya and continues east (99 km) toward the Nacala Port.
- The North and Northwest branches (400 km) traverse the Zambia border at Mchinji through Lilongwe, on to Salima near Lake Malawi (18 tonne per axle). South of Salima, the railway runs to Nkaya (18 tonne per axle).
- The southern rail section runs through Nkaya-Limbe–Marka (297km) but almost 200 km is currently non-operational south of Limbe.

Figure 41: Malawi Railway Network (2017)



Source: World Bank, 2017

C F

Though rail offers the greatest potential for reducing transport costs and carbon emissions, the network is not fully integrated with other modes

Key railway sections of the historic Sena line route to Beira are non-operational. Significant sections of the Chiromo rail crossing have washed away, and have not been repaired. This leaves around 200 km of the roughly 300 km southern rail line (Nkaya-Limbe–Marka) to the Mozambique border stranded from the national rail network. (See Box 6).

Table 20: Recent Railway Sector Performance

Railway performance	2018	2019	2020	2021
Total freight (tonne)	401,087	466,399	398,978	537,139
Total passengers	216,000	303,300	253,800	239,000

Railway currently carries less than 7 percent of freight. Freight rail services is only available at Nacala port. Haulage of coal accounts for more than 90 percent of the freight traffic.

Only the Limbe-Nkaya-Nayuchi section offers both freight and passenger services. Prior to COVID-19, passenger rail steadily increased, recording approximately 300,000 passengers annually.

Significant private sector investments have helped increase rail capacity to 20.5 tonnes per axle for about 300 km line sections (including Nkaya-Limbe), connecting Moatize in Mozambique to Nacala via Malawi.

Malawi 2063 flagship project

Box 6. Revitalizing rail requires reconnecting the Sena line

Key sections of the historic Sena line route to the Port of Beira were washed away during the floods in 1997 and 2015. Rehabilitation and upgrading of the railway line from Limbe to Marka will connect the full national rail network to support both passenger and freight modal shift targets. Rail transport investments are channeled towards restoring both the Sena line access to Beira and connecting the Nacala corridor at Limbe to improve domestic and international trade. The Government is committed to funding the rehabilitation and reconstruction of the 130-km Sena Corridor through a combination of public resources, concessionaire investments, and local infrastructure bonds, at an estimated MKW 287 billion ($350 million equivalent). The two sections that must be completed for full national rail network connectivity are:

- **Makhanga–Bangula.** Rebuilding the Shire River crossing and connecting Limbe to Sandama/Makhanga (approximately 9 km). The investment in critical infrastructure is essential for a climate resilient approach to upgrading this section to counter future flood risks to the rail network
- **Sandama–Makhanga.** A critical rail section between Sandama and Bangula to connect the national rail network. It will potentially have upgraded axle load and line capacity as well as improved passenger rail stations along the section.

An ongoing investment of $30 million, funded by CFM, is being used to upgrade the Mutarara–Malawi border section of the Dona Ana–Vila Nova da Fronteira line. Following a memorandum of understanding between Malawi and Mozambique, a 44-km section in Mozambique that was decommissioned in 1986 is being upgraded to carry both freight and passenger services. The investment enables faster speed and higher capacity, from 30 km/h to 60km/h, and from a 16.5-tonne axle load to 20.5-tonnes, respectively.

Table 23: CMTIF Railway Investment Plan

	Section	Period	Estimated cost (MWK million)	Estimated cost ($ million)	Funding source
Reconstruction and upgrading of 130km of railway line	Ruo Bridge construction (175 m)	2019-2021	7,000	8.55	CEAR, Govt, PFI
	Marka-Bangula (72 km)	2020-2023	70,000	85.40	CEAR, Govt, PFI
	Bangula-Makhanga (8.7 km)	2022-2023	62,500	76.25	CEAR, Govt, PFI
	Makhanga-Msandama (49 km)	2023-2025	77,500	94.55	CEAR, Govt, PFI

Source: CMTIF

C F G

There are several network and operator concessions in the rail sector with varying performance over recent years

Central East African Railways (CEAR) was awarded the first rail operator concession in 1999

At the time of awarding, the **CEAR** consortium was led by the Railroad Development Corporation (USA), Edlow Resources Limited (Bermuda), Nacala Comércio Internacional Lda of Madeira, and Portos e Caminhos de Ferro de Moçambique (CFM). The concession was revised in 2013, with operations covering both freight and passenger transport across 696 km of Government-owned rail assets.

The construction and operation of 136 km of greenfield sections of the Nacala rail corridor linking Nkaya to Kachaso was concessioned to Vale Logistics Limited (VLL), under a build-own-transfer, for 30 years, commencing in 2016. In 2020, operations were rebranded as **Nacala Logistics (NL),** representing CDN, the Nacala Integrated Logistics Corridor (CLN), CEAR, and VLL, and was responsible for the logistics of coal and general cargo in the Nacala Corridor. In December 2021, Vale exited the coal market and sold its coal assets and stake in NL operations to Vulcan.

In addition to CEAR and the Nacala Logistics operators, Malawi currently has three other registered railway companies:

- **Malawi Railways** 1994 Limited (MR94), which the Government looks to resuscitate
- **Zambia Rail Ltd,** which is currently not operating services
- **Corridor Logistics Africa,** which transports coal

African Rail Company (ARC) holds a provisional license to transport fuel from Nacala and Beira ports.

Annual rail concession fees are not fully reinvested into the sector

The Department of Railway Services, which is financed by a portion of related concession fees, is currently responsible for sector management. The annual rail concession fees are calculated based on gross revenue of CEAR at a rate of 6 percent, and annual revenue of VLL at a rate of 4 percent. Approximately 30 percent is distributed among the RFA, the regulator (Department of Railway Services), and a Government-consolidated account, with 70 percent allocated to rail development projects.

Table 21: Annual Railway Concession Financial Returns (2016-2021)

Year	MK billion	$ million (equiv)
2016	2.4	2.94
2017	6.2	7.61
2018	7.5	9.2
2019	6.6	8.1
2020	4.37	5.3
2021	6.58	7.98

Source: MTPW

MTPW intends to raise capital through the issuance of local or international bonds with longer tenors, whereby repayment is made possible through financial returns from concession fees.

C F G

Rail sector investments by the government and concessionaires have increased in recent years for both freight and passenger services

Several projects have recently been completed, are well advanced, or have been planned

Construction of a new railway bridge across the Shire River in Balaka. In February 2021, Nacala Logistics completed a 165-meter-long Shire North railway bridge along the Limbe-Balaka railway line at a cost of approximately $13 million.

Rehabilitation of Nkaya–Mchinji railway section. Work on the 399 km section commenced in March 2018, and it includes upgrading of the Nkaya-Salima section (15-18-tonne axle load capacity) and rehabilitation of the Salima-Mchinji section. Expected to be completed in January 2023, the section can help increase cargo volumes between Chipata in Zambia and the Nacala Port.

Resuscitation of the Limbe-Marka railway section. Upgrading 201 km of the line to 20.5-tonne axle load standard is necessary to conform to the connection with the Mozambique line. Rehabilitation of the 72 km Limbe-Sandama section is being carried out by CEAR (to be completed by July 2022). The remaining section 129 km is under evaluation.

NW2063 aims to increase rail passenger volumes by more than 75 percent by 2030 through a mix of public and private sector investment.

In October 2021, Nacala Logistics suspended its passenger operations due to the theft of rail materials that compromised safety, and again in January 2022 after major flooding disrupted the network. Partial services resumed in June 2022, with full service commencing in August 2022.

Regional partnership and coordination is also crucial to realizing the benefits of rail services. CFM holds the right to operate trains over the Mozambique section of the Beira corridor. Agreements will be needed between CEAR and CFM as to how they will divide the haulage of traffic among operator licenses in both States. That agreement is likely to give CEAR the opportunity to market price inbound rail traffic. The key danger with this is that CEAR exploit their position, either immediately or over time, to reinforce Nacala (from which they receive higher revenues) at the cost and loss of competitive pressure that benefits the Malawian economy.

Source: Rail Services Department

Passenger services are provided as part of CEAR's corporate social responsibility

Updated rolling stock has enabled a differentiated class of services for passenger experience

Table 22: Passenger Times and Scheduled Fares (2021)

Day	Time	From	To	Business class (MKW)	Premiere class (MKW)
Monday	06:00	Balaka	Limbe	2,100	1,700
		Balaka	Blantyre	1,800	1,450
Tuesday	07:00	Limbe	Balaka	2,100	1,700
		Limbe	Blantyre	300	250
Wednesday	06:00	Balaka	Nayuchi	2,100	1,700
		Balaka	Liwonde	750	600
		Liwonde	Nayuchi	1,400	1,200
	13:30	Nayuchi	Balaka	2,100	1,700
		Nayuchi	Liwonde	1,400	1,200
		Liwonde	Balaka	750	600
Thursday	06:00	Balaka	Limbe	2,100	1,700
		Balaka	Blantyre	1,800	1,450
Saturday	07:00	Limbe	Balaka	2,100	1,700
		Limbe	Blantyre	300	250
Sunday	06:00	Balaka	Nayuchi	2,100	1,700
		Balaka	Liwonde	750	600
		Liwonde	Nayuchi	1,400	1,200
	13:30	Nayuchi	Balaka	2,100	1,700
		Nayuchi	Liwonde	1,400	1,200

Source: Nacala Losistics, 2021

Government-owned Malawi Lake Services Ltd (MLS) has two concessions to operate port facilities and provide freight and passenger services

The four main lake ports in Malawi – Chilumba, Chipoka, Monkey Bay, and Nkhata Bay – are all in need of upgrades

Nkhata Bay, in the middle region of the lake, is the most active port. It mainly serves as the departing point for passengers to Likoma and Chizumulu Islands. Nkhata Bay has some cargo handling capacity.

Both **Chilumba** and **Chipoka** offer the main freight terminals to transfer containers, fuel, and dry bulk cargo via the Dar es Salaam corridor. Chipoka is the only port currently connected to rail that can service the Nacala Corridor but is not operational, as vessels cannot access the berth due to lowered lake level and a lack of operator dredging. Chilumba is also currently idle.

Equipped with a floating dock and slipway, **Monkey Bay** is primarily used as a shipyard for shipbuilding and vessel maintenance services. Additional storage area and machinery is needed to improve its potential.

Nkhata Bay and Chipoka can also serve as a port-of-entry into Malawi, as it houses both the immigration and Malawi Revenue Authority facilities. No lake ports currently have roll-on-roll-off (RoRo) facilities.

Map 2. Malawi's Lake Port System

Source: NTMP

Concessions have been granted to firms that are owned by the same single shareholder. Two concessions have been granted for a 35-year period for shipping services (2010) and ports (2013):

- **Malawi Shipping Company (MSC)** currently operates the minimum required services as mandated by its passenger service obligation (PSO). One passenger vessel operates a round trip ferry service every week on the Nkhata Bay-Chizumulu-Likoma and Nkhata Bay-Usisya-Chilumba routes. MSC provides freight services on a case-by-case basis.
- **Malawi Ports Company (MPC)** operates the lakes' four main ports – Chilumba, Chipoka, Monkey Bay, and Nkhata Bay. MPC has not invested in the ports and in some cases, operating conditions have worsened.

Neither operator has met operational and financial reporting requirements, nor has capital expenditure been mobilized. The Country Private Sector Diagnostic acknowledges that the port management company can potentially leverage its access to ports to the exclusion of other shipping services. There are also opportunities to increase private sector involvement in vessel fleets and the provision of shipping services.

C F

A combination of poor infrastructure, low lake levels, and lack of inter-modal connectivity makes waterways less competitive

Operational and regulatory inefficiencies have hampered sector performance

- Investments and maintenance have been historically poor.
- Vessels are operated at lower speeds due to the high cost of diesel, which accounts for 65 percent of operating costs per voyage.
- Existing vessels are not well fit for purpose. High-speed diesel engines, which are expensive and have short lifespans, also diminishes the reliability of services.
- Port facilities are underutilized, lack adequate cargo handling equipment, and offer limited storage capacity, causing them to lie idle mostly.

Table 24: Passenger and Freight Performance and Budget Allocations (2016-2021)

Year	2016	2017	2018	2019	2020	2021
Passengers (No.)	26,202	31,966	33,173	33,644	42,868	67,334
Freight (tonne)	5,132	3, 829	3, 868	3, 907	3, 701	4, 062
Financial year		**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**
Finances (000'MK)		175	1,236	976	2,267	2,695

Source: MTPW

Waterway passenger and freight movements significantly lags other modes

Passenger services face challenges with capacity and affordability:

I. The Malawi Shipping Service ferry is too large and relatively expensive for current passenger market demands in its fixed routes.

II. Independent operators' vessels are too small to meet passenger demand, potentially compromising safety.

The main opportunities for freight movement on Malawi's waterway routes include:

I. Mbamba Bay (Tanzania)

II. Nkhata Bay route, which forms the main crossing for the Mtwara corridor and can connect road networks between Tanzania and Zambia

III. Chilumba, Nkhata Bay to Chipoka and Liwonde, which would connect Mtwara, Dar-es-Salam, and the Nacala Corridors

The country also has informal lake transport, as numerous lakeshore villages that depend on fishing for livelihood are only accessible via the shores of Lake Malawi. While the southern shore has traditionally been well connected to roads, more isolated villages on the northern shore rely primarily on lake access.

Vulnerable to climate change, a drop in water levels in recent years has had a huge impact on maritime assets' accessibility and performance. Therefore, sectoral investments should be done only after considerable due diligence on site-specific climate vulnerability, as well as impact assessments that recognize the risk of assets potentially being stranded during periods of extreme drought.

F G

Inland waterways can facilitate modal shift, yet do not currently offer end-to-end services, with only a few ports serving inter-modal linkages

The Inland Waterways Investment Strategy focuses on regional corridor connectivity, but also looks to serve Lake Malawi's remote communities

Rehabilitation of Chipoka, Chilumba, and Nkhata Bay ports is crucial for regional corridor development. Upgrading Chipoka Port can potentially open up access to three key regional corridors and help in:

- Revitalizing the North-South corridor
- Strengthening intermodal linkages with Nacala
- Facilitating network development and resilience to support freight movements along the Mtwara and Dar-es-Salaam corridors.

Chipoka and Liwonde are crucial locations with proximity to the rail network. Capital investment in Chipoka can rehabilitate the port and construct a deeper berth. The rehabilitation of Nkhata Bay would also facilitate access to the Mtwara corridor. Infrastructure to enable modal-shift is also central to the climate adaptation and mitigation agenda (see Box 7).

The construction of landing stages and facilities at select docking areas along Lake Malawi are also a priority. Basic access for villages that depend on waterborne transport can help improve safety, while supporting social cohesion and connectivity to local markets.

MW2063 expects a mix of financiers from the private sector, including current PPP concessionaires, to contribute to the national budget and local bonds for IWT development. Investment in ports and jetties at Chipoka, Chilumba, Likoma, Monkey Bay, and Nkhatabay are essential to achieve the NDC freight and passenger modal shift targets. The construction of the MK10.1 billion Likoma jetty is the Government's top priority, and it will receive funds from the national budget. However, many of the CMTIF projects have yet to secure funding.

F G

Inland waterways can facilitate modal shift, yet do not currently offer end-to-end services, with only a few ports serving inter-modal linkages (cont'd)

Table 25: Medium-term Funds for the Waterway Sector (2019-2025)

CMTIF Activities	Timeframe	MWKB	$ m	Source	Status
Likoma port construction, cargo handling equipment	2019-2021	10,000	13.33	GOM	Fund available
Review of Water Transport Safety Regulation - consultations on updated Inland Waters Shipping Act	2021-2022	100	0.13	GOM	Fund available
Feasibility studies for establishment of dry ports in Lilongwe and Blantyre	2021-2025	22,500	30.00	TMEA	Fund available
Chipoka port facilities rehabilitated, capital dredging, navigation lights installed	2020-2025	10,000	13.33	GOM	Fund not available
Landing facilities constructed at docking places at; Chizumulu, Senga Bay, Nkhotakota, Mangwina, Usisya, Makanjira, Ruarwe, Tchalo, Mlowe	2020-2025	1,500	2.00	GOM	Fund not available
Rehabilitating Monkey Bay shipyard and ship repair facilities available to all vessels	2020-2025	5,024	6.70	GOM/ PFI	Fund not available
Capital dredging and gantry crane replacement in Chilumba port	2020-2023	1,500	2.00	GOM	Fund not available
Construction of jetty, landing facility for RoRo operation and rehabilitation of waiting shelter in Nkhata Bay Port	2022-2025	15,000	20.00	Mw/TZ/ZA	Fund not available
Expansion of Marine Training College	2023-2025	1,500	2.00	GOM	Fund not available

Source: CMTIF

Box 7: Translating climate policy into climate actions

The adaptation measures identified in the NTMP requires a total investment of between $437 million and $1.75 billion, and it anticipates a cost benefit ratio of between 1.7 and 2.7, depending on the investment scenario and discount rates for respective interventions.

National Transport Policy (2019) integrates preparedness measures and supports Building Back Better principles

- Develop geo-spatial database of transport asset conditions and identify vulnerable infrastructure
- Adapt technical and design standards to Malawi's specific geographic, environmental, and operational context
- Undertake a comprehensive assessment of Malawi's existing bridge infrastructure inventory and condition as a priority
- Improve code enforcement and enhance ex-ante instruments for maintaining and rebuilding core infrastructure

Supporting low carbon growth by:

- Incentivizing cleaner technologies and fleet modernization
- Supporting multimodal logistics and modal shift
- Prioritizing and securing funding to maintain climate-resilient roads and meet improved standards and quality assurance

The road sector is transitioning towards long-term, performance-based contracts - a delivery modality that has not been introduced

- Secures adequate long-term financing
- Shares risks with the private sector with a strong focus on asset quality and level of service metrics; emergency works contingencies to enable contractor's rapid response to climate events

Updated NDCs identify four key transport sector policies and investments for low carbon growth:

1. **Biodiesel:** commercial production capacity of 55 million liters of blended biodiesel fuel (private sector)
2. **Biofuel:** increased ethanol blending to achieve an average national blend rate of 20 percent ethanol (private sector)
3. **Modal shift:** increased share of passenger transport from ~ 10 percent to ~ 30 percent by 2040 (MTPW, MoLG, DRTSS)
4. **Modal shift:** road to rail freight - increased use of rail (MTPW, Rail Department, and private sector rail operators)

Sector	Climate adaptation action plan for multi-modal investment scenarios
Rail	**Reconstruction of the Sena Line** -New and rehabilitated railway linking Limbe to the port of Beira. Estimated investment of MK220 billion ($270 million)
	Moatize avoiding line - New 13 km railway cord connecting Nkaya-Moatize line with Moatize-Beira line, within Mozambique
	Chipata-Serenje - New 388 km railway from Chipata via Petauke to Serenje on the TAZARA line, within Zambia
	Mbeya-Chliumba - New 234 km railway from Mbeya to Chilumba via Karonga, rail access to Dar-es-Salaam port
Ports	**Dry Port at Salima-** New intermodal connection at Salima to allow road freight to transfer to rail
	Lake Malawi North South Service -Scheduled freight service operating between Chilumba and Monkey Bay with associated port developments
	Lake Malawi Mtwara Corridor -Development of Nkhata Bay Port to enable RoRo freight service between Nkhata Bay and Mbamba Bay on Mtwara Corridor

C

The main challenge for Malawi's aviation sector is its thin traffic base, particularly in the domestic market

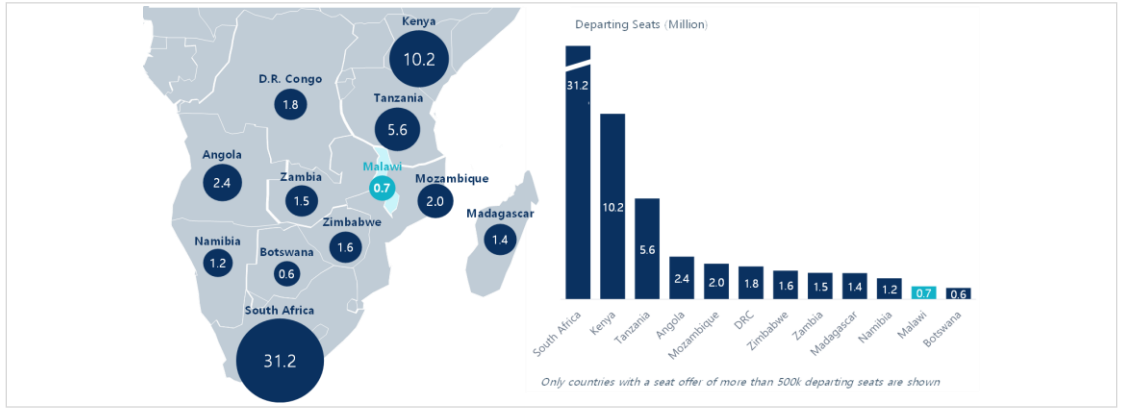
Malawi's air transport sector faces multiple constraints

- The market for scheduled services within Malawi is small, as a direct consequence of low income and insufficient economic wealth
- Absence of critical infrastructure, including navigation aids (at Chileka International Airport), and limited funds for infrastructure maintenance
- Low safety standards, and poor implementation of critical elements due to technical capacity constraints of the regulator
- Malawi Airlines is not profitable

Available seats are among the lowest in the region. Pre-COVID-19, there were 892,297 seats available, 0.046 seats per capita, compared to Africa's 1.22 seats per capita. Ten air operators served the market during that time, with Ethiopian Airlines offering identical seats as Malawi Airlines, 349,862 each, an individual market share of 39 percent, followed by Kenya Airways with 81,113 seats and 9 percent market share.

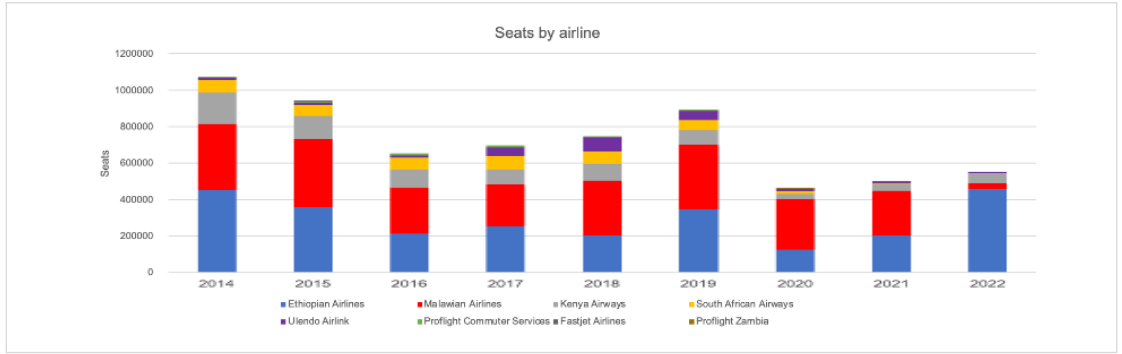
Of the total destinations (O&D) to which passengers flew during 2019, only nine exceeded 10,000 passengers, Johannesburg (76,708) being the most important, followed by Nairobi (35,297). Addis Ababa, with only 4,780 direct passengers, was not a highly demanded destination but accounted for the largest transfer hub (104,126), followed by Johannesburg (69,945), and Nairobi (60,858).

Figure 42: Size of Malawi's Neighboring Countries' Markets (2022)



Source: ALG, 2022

Figure 43: Seat Capacity of Malawi's Air Transport Sector (2014-2022)



Source: OAG Schedules analyzer, March 2022

C

Malawi's passenger costs, charges, and taxes for regional flights are below the region's average

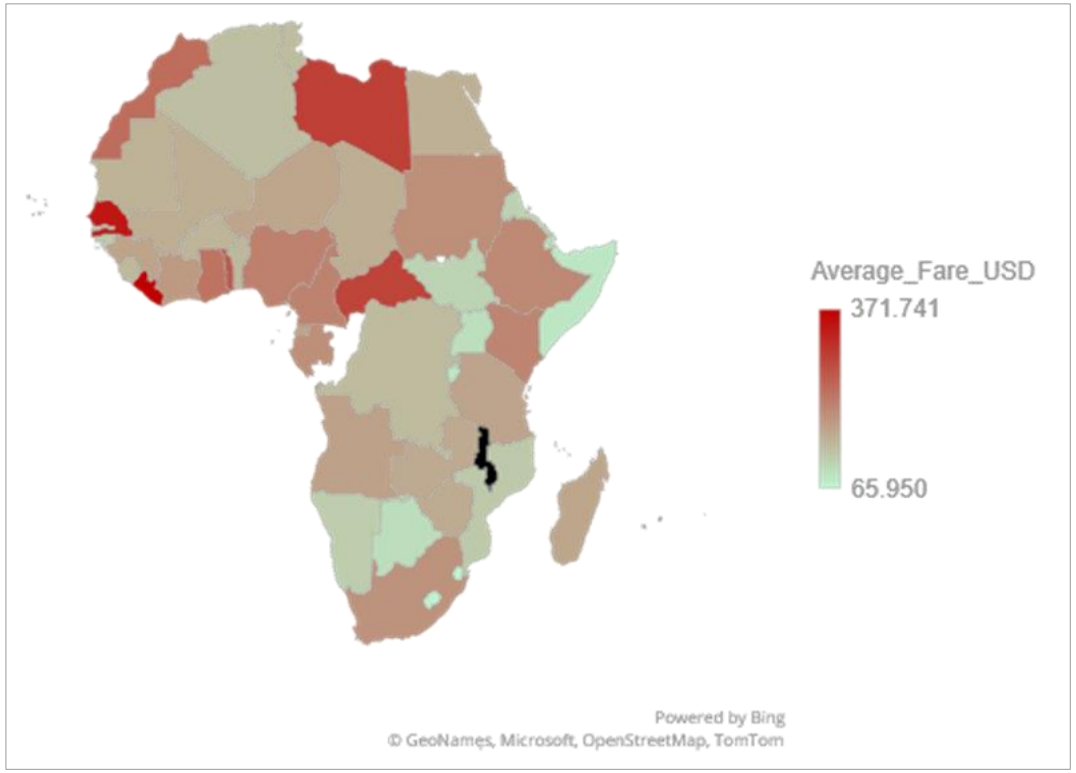
In 2019, Malawi's average fare for intra-African and domestic air travel was significantly lower than in most African countries

- Costs averaged approximately $80 per passenger compared to the continental averages of $181 (2019)
- Malawi's passenger-based charges (including taxes) for international flights at Malawian airports – $36.7 per departing passenger – are below the region's average of $50 per departing passenger, and below the charges of most competing airports.
- Airport fees in SSA are much lower than in West Africa, where the average fee is about $115 per departing passenger.

Despite lower average fares, air travel is largely unaffordable for most Malawians, and the typical passenger profile for both domestic and international travel is Government officials and corporate travelers, with a relatively small number of tourists.

Improving air connectivity is often considered one of the global catalysts for economic growth. Air connectivity measures the degree to which air transport can support a country's economic development. Malawi's global air connectivity ranks in the bottom quintile. Liberalization of air access, a key policy theme of the Africa Union's advocacy for a Single African Air Transport Market (SAATM), is among the major regional initiatives to change the existing market dynamics.

Figure 44: Range of Average Fares for Intra-African and Domestic Air Travel



Source: Sabre 2019, intra-African average net fare, $

C

Air connectivity continues to be a continental challenge

Table 26: International Air Transport Association (IATA) Air Connectivity Global Rankings (2019)

Country	Global ranking 2019	Air connectivity per 1000 people 2019	Growth 2009-2019	Air connectivity per GDP 2019	Growth 2009-2019
Burundi	199	178	-9%	196	39%
Malawi	181	176	7%	179	38%
Mozambique	156	170	39%	161	98%
Rwanda	150	157	786%	137	891%
Uganda	116	158	72%	106	188%
Zambia	139	151	27%	128	82%
Zimbabwe	148	155	25%	156	21%

Source: IATA

C F G

Despite ADL'S corporate mandate to operate all state-owned airports, it still does not have full ownership or statutory power to levy charges and fees

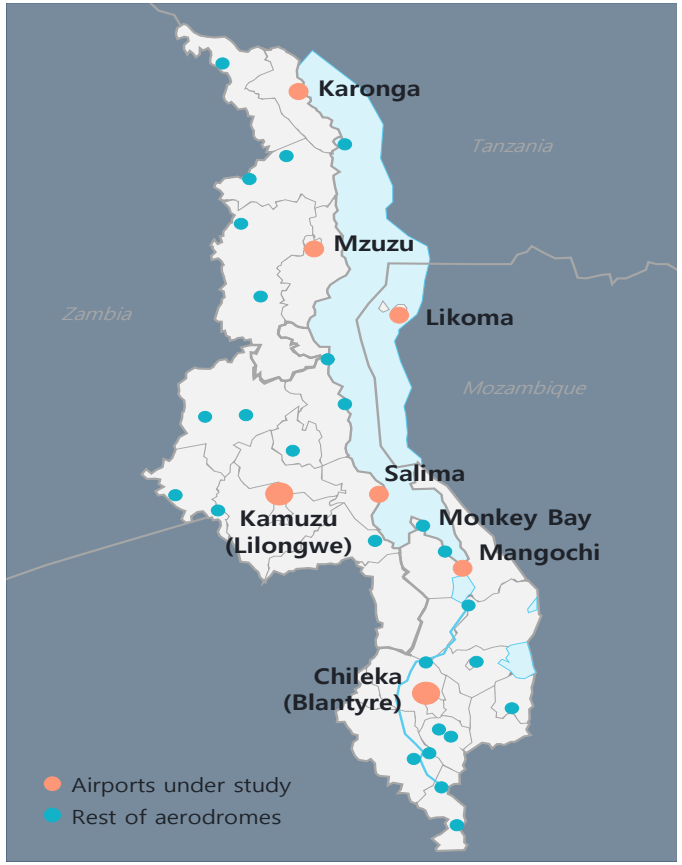
Malawi has a network of 33 aerodromes and airfields

In addition to the two main international airports - **Kamuzu International Airport and Chileka International Airport** - serving the capital city of Lilongwe and business center of Blantyre, respectively, there are five secondary airports at Karonga, Mzuzu, Likoma, Salima, and Club Makokola, with international access but no international scheduled routes in 2020. The remaining 26 airfields are domestic.

Both international airports (Kamuzu, Chileka) receive Code D aircraft (Boeing 737, Airbus A320). Only Kamuzu airport is guided by instrument flight rules and all other aerodromes are operated by visual flight rules.

In 2019, the total passenger traffic at Malawi's airports reached 510,000 passengers (excluding transit passengers). Kamuzu accounted for 71 percent and Chileka 28 percent. The remaining 1% is shared among Likoma, Mzuzu, Club Makokola, and Liwonde. Karonga, Salima and Mangochi showed no traffic according to the DCA and Ulendo Airlink records.

Map 3. Malawi Aerodrome Map (2017)



Source: NTMP

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Organizational right-sizing for ADL and DCA is necessary to align salary and industry benchmarks

The DCA is challenged by low employee retention and recruiting due to low pay rates and civil servant employment conditions in Malawi, which are not competitive when compared with ADL or the private sector. In 2021, Malawian airports employed about 450 people (excluding air navigation services). Kamuzu employs 292 workers (65 percent of total), followed by Chileka with 108 staff (24 percent). The DCA staff (308 employees) represents 2/3 of the total workforce. Total staff costs in FY2020 reached $2.4 million, out of which more than 75 percent was accounted for by ADL staff.

Headcount per passenger is above regional benchmarks, even in Kamuzu with 0.9 employees per thousand passengers and Chileka, with 0.7 employees per thousand passengers. However, unit staff costs in Kamuzu ($5.0/pax) are more in line with the benchmarks, while Chileka ($1.1/pax) is well below benchmarks. This is due to the relatively low salaries of the DCA.

The ADL was created as a commercial enterprise for the construction, operation, and management of the Kamuzu International Airport (KIA); the DCA continues to operate airside at KIA, as well as own, operate, and manage Chileka and all secondary international airports (except Likoma Airport) and domestic aerodromes and airfields. Though the ownership of KIA and other auxiliary buildings has been technically transferred to ADL, including the Lumbadzi Housing Estate, it operates only the landside of the KIA and Likoma Airport.

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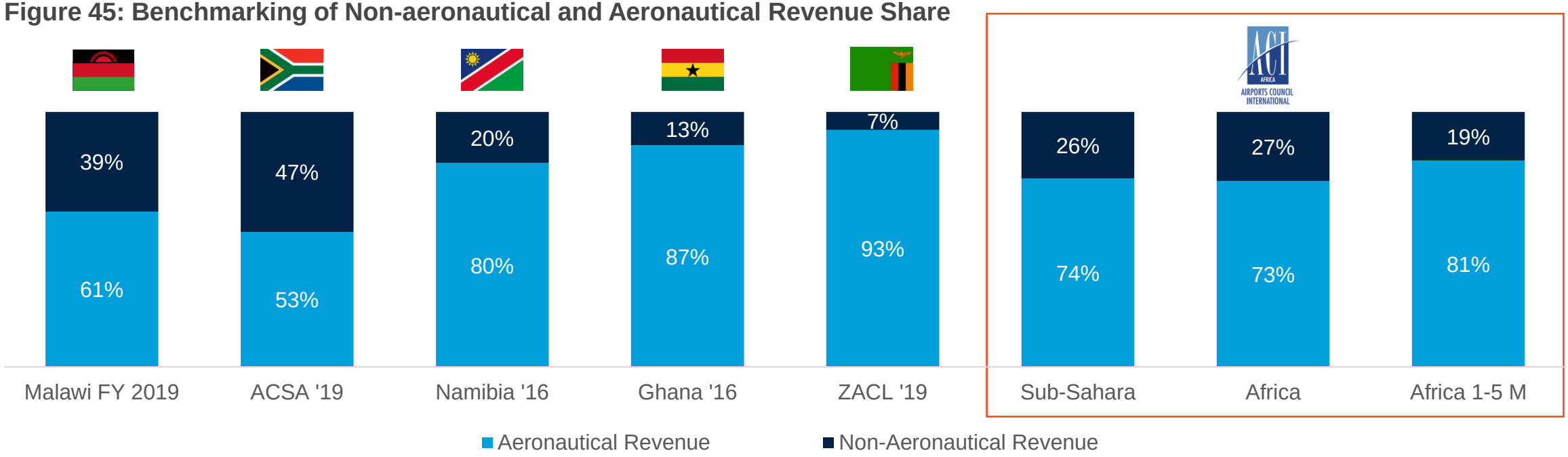
Malawi's airports and air navigation services generate positive returns

Figure 45: Benchmarking of Non-aeronautical and Aeronautical Revenue Share



Source: DCA, ADL, ACI 2017 Report Airports Economics, Airports financial statements, ALG analysis

Table 27: Approved Budget (MWK million) for the Aviation Sector (2016-2021)

	2016-17	2017-18	2018-19	2019-20	2020-21
Development	18,375	2,430	2,150	6,450	600
Recurrent	702.47	844.26	1,277.15	1,483.21	1,823.11
Total	**19,077.47**	**3,274.26**	**3,427.15**	**7,933.21**	**2,423.11**

Source: MTPW

FG

Malawi's airports and air navigation services both generate positive returns (cont'd)

Aeronautical revenues are collected by the DCA and remitted to a Government central account

Although the air transport system currently generates profits, funds are not reinvested directly into sector operations and management. The DCA depends on a yearly budget approved by the treasury and is challenged to cover day-to-day operating expenses. ANS revenues in Malawi are limited and the low volume of traffic in the country does not generate sufficient funds to meet the required ANS capital investments. The CMTIF budget for planned projects is estimated at MWK53.6 billion, towards which the Government has presently committed MK750 million.

The total revenue generated by the aviation sector in Malawi is predominately through airport operations. Revenues amounted to $9.35 million in FY2019, with airport revenues comprising 89 percent of it. The operating costs share is:

- Airports: 82 percent
- Air navigation services: 9 percent
- Others (DCA head office and aviation training school costs): 9 percent

Malawi's airports' non-aeronautical revenues, which represent 39 percent of the total airport revenues, is higher than that of peer countries such as Namibia (20 percent), Ghana (13 percent), and Zambia (7 percent), with South Africa (47 percent) being the only exception. However, a significant contribution to Malawi's non-aeronautical revenues (35 percent) are from the lease of housing units. Without housing revenues, the share of non-aeronautical revenue at Malawi's airports would be 30 percent.

Malawi's aviation-related SOE portfolio includes Lilongwe Handling Company (LIHACO) and Air Cargo Malawi Limited (ACM), which are slowly returning to profitability as the impact of COVID-19 wears off. **LIHACO** saw its total revenues fall from MK3.3 billion (FY19/20) to MK1.6 billion (FY20/21), while expenditures grew by 7 percent, resulting in a loss of MK1.7 billion. In FY20/21, its liquidity decreased (0.52:1), challenging it further to meet its current liabilities. Meanwhile, owing to reduced cargo uplift volumes in 2020, **ACM** reported a net loss after tax of MK165.5 million in FY20/21, which is lower than the MK202 million loss from the previous year. The Country Private Sector Diagnostic highlights that potential market entrants have expressed dissatisfaction that concessions for airports services have not been advertised but contracted directly without a competitive public procurement process.

F G

Box 8. Viability of a public private partnership for Malawi's airports

There is potential to attract private sector participation in accessing commercial finance for airport development, as well as improving the quality of infrastructure and service delivery for Malawi's airports system. At the request of the Public-Private Partnership Commission (PPPC) and with support from the Public-Private Infrastructure Facility and Global Infrastructure Facility, the World Bank Group presented a Malawi: Airports Public-Private Partnership (PPP) Viability Options Assessment. A high-level roundtable was conducted in November 2021 to give decision makers a deeper understanding of the potential PPP arrangement and established that a blended public-private finance approach was the most viable way to achieve the Government's goals. Technical assistance for developing a detailed feasibility study and transaction advisory services will be required to take a specific PPP model forward. There needs to be emphasis on institutional improvements, including proper regulatory and legal frameworks, and continued development and empowerment of the Civil Aviation Authority (CAA) to assure investors and operating entities.

A primary objective in an airport concession is to shift the managerial stewardship and commercial incentives of airport operators to take greater responsibility for infrastructure investment and route development. Besides operating an airport as a public facility for servicing airlines, passengers, and cargo, operators can make the most of concessions to increase revenues from non-aeronautical services such as duty-free, retail shopping, and restaurants.

Goals and Challenges of Malawi's Airport Management

Goals of the Government of Malawi

- Get the private sector to **provide financial resources for infrastructure investments**
- **Improve the levels of service** at the different airports under the study
- Increase **operating efficiency and financial performance**
- **Employment generation, staff training,** knowledge transfer, and retention of qualified personnel
- Improve the overall **position of the Malawian aviation sector**

Challenges of airport operations

- **Inability to grow the thin traffic base** to levels that enable sustainability of the whole network of airports in Malawi, particularly in the domestic segment
- **Flow and collection of revenues:** revenues generated by the aviation sector are not retained for the funding of aviation investments, operations and maintenance
- **Low employee retention and compensation,** particularly under the DCA (due to low salaries of public employees)
- **Lack of financing for investments in capital projects,** for capacity-demand and ICAO compliance in the airports

Source: ALG (2021)

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Malawi Airlines is a joint-venture between the government (51 percent) and Ethiopian Airlines (49 percent), but is not considered an SOE

African airlines pay more than their peers for aircraft, equipment, fuel, and charges, though they often benefit from lower labor expenses

A benchmark of 40 airlines from Africa, Europe, and the Middle East indicates that African carriers reported almost 52 percent higher costs per available seat kilometer (CASK) and 42 percent higher revenues per available seat kilometer (RASK). The higher regulatory barriers on the continent and lower purchasing power affect demand and load factor, although Africa has a significantly lower level of competition, especially in the intra-Africa region.

Table 28: Airline Cost Analysis Benchmarking by Region, 2020

Region	Africa	Europe (EU)	Middle East
State ownership sample (%)	45.4	10	50
CASK	11.79	7.74	7.58
RASK	10,86	7,65	7,39
Profitability (% of carriers)	23.8	50	50
Crew/aircraft	3.9	3.8	4.4
ASK ('000)/Employee	2314	6720	4192
Load factor (%)	70.3	79.1	78.6
ASK ('000)/Destinations	215.000	240.267	315.600
Fleet lease (%)	34.6	61	48.3
Average number of destinations	36	80	46
COVID-19 assistance (USD/ASK)	0,0168	0,0224	0,0053

Source: Analysis based on IATA and public data. R. Brutaru (2022)

In 2022, Ethiopian Airlines overtook Malawi's seat capacity share, offering nearly 85 percent of all seats

Between 2014 and 2021, Malawi Airlines (3W) had an average load factor of 58.5 percent, which dropped to 44 percent during the 2020-2021 pandemic period.

Figure 46: 3W Capacity vs Total Market

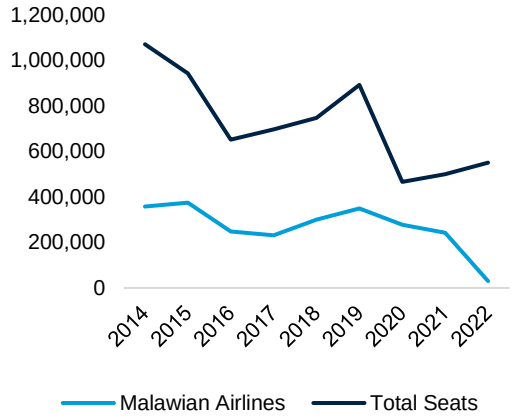
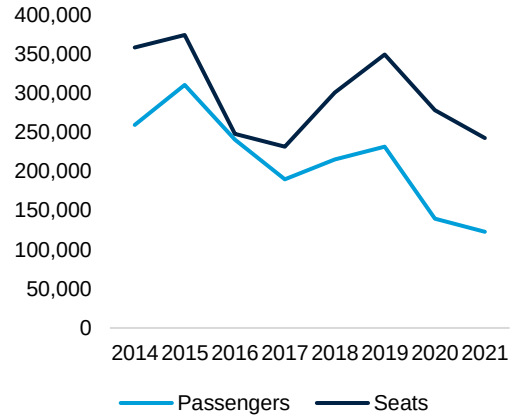


Figure 47: 3W Seats vs Passengers Carried



Source: OAG Schedules and Traffic analyzer, March 2022

Malawi Airlines' financial performance report is not publicly available. Though ET reports annually based on International Financial Recommended Standards (IFRS) and publishes its financial reports, 3W's results are not consolidated. At the time of the NTMP, Government divesture from the airline was under consideration.

Box 9. The Benefits of the Single African Air Transport Market (SAATM)

The cost to Malawi for not implementing SAATM is conservatively estimated as a long-term deficit of 420,100 passengers, a reduction of 27,960 direct and indirect prospective jobs, and a missed opportunity to add $46.6 million to the GDP by 2050.

Malawi is one of thirteen African countries that are party to the Yamoussoukro Decision (YD) but not a member of the SAATM. Contrary to the principles of YD, access rights are still governed by restrictive Bilateral Air Services Agreements (BASA). Malawi currently has twenty BASAs in place - thirteen in Africa and an additional seven in Europe, the Middle East, and Asia-Pacific. A recent AU and IATA study found that Malawi's BASAs have low compliance with YD and is one of twenty States that have yet to sign its Solemn Commitment to fully implement SAATM measures, opting instead to protect their respective national carriers. Malawi has selectively granted fifth freedom to several foreign airlines such as ET and Kenya Airways on specific routes.

The AU study highlighted that airline and market competition, including fifth freedom rights and cross-border investment in aviation, can improve industry growth prospects. According to the IATA, once liberalization measures are implemented, there will be traffic growth across southern African, including Malawi (56 percent), Mozambique (45 percent), South Africa (31 percent), Tanzania (68 percent), Zambia (60 percent), and Zimbabwe (49 percent). The introduction of new routes and frequencies is one of the main drivers of air traffic growth, as it provides passengers with greater levels of connectivity, shorter travel times and eventually, lower fares. Air liberalization has given a significant boost to the growth of low-cost carriers, as these airlines need to deploy flexible, multinational network strategies. The countries that have liberalized their access rights early have an advantage in increasing routes and frequencies.

Not joining the SAATM significantly limits the aviation market's ability to address infrastructure deficiencies and policy constraints. The highest risk to a potential airport PPP is that the level of air traffic is the principal source of airport revenues and profitability. Increasing the number of airlines operating across an airport network is crucial to the system's overall performance, while liberalization of the intra-African market can also help develop Malawi's domestic aviation. Obtaining public and private funding for addressing safety requirements, and then sector growth ambitions, will depend on the assurances that open skies policies will be in place to allow concessionaires to manage route development with airline clients.

G

Outdated regulatory frameworks without independent regulators and thin institutional capacity hamper sector safety and investment

There needs to be greater focus on strengthening the institutional framework and sectoral expertise in both economic and safety regulation

The recent establishment of an autonomous CAA in Malawi was a major achievement. Approved in 2017, the new CAA Act came into effect only in September 2020; however, regulatory capacity to provide effective safety oversight continues to be a challenge.

With the MTPW providing overall policy direction, **there is acknowledgment of the gaps in skills and local expertise in operation and management.** Efforts are underway to leverage government-owned institutes to support knowledge and management within the subsectors.

- Expansion of the **Maritime Training College** is a near-term priority to support the development of waterways and services, and specifically the economic and safety regulator aspects of the Department of Marine Services.
- The MTPW aims to reactivate **Malawi Railways 1994 Ltd** to spearhead railway infrastructure development and to reestablish a railway training center.

An independent regulator must be empowered to address the needs of the maritime and railways sectors

The transport sector needs an empowered regulator to oversee tariffs and cost recovery, enforce technical and safety standards for both rail infrastructure and operators, and for port operations and watercraft. This will ensure the coordinated and sustainable development of each sector so the regulatory body can better manage the contractual obligations of concessionaire/private sector operators.

- **The concessionaires for both ports and shipping services have not met their contractual commitments.** The annual port concession fees of 2.5 percent of profits generated for the operation of port assets have not been remitted since the concession award, nor have the concessionaires met annual operational and financial reporting requirements. Additionally, they have not adhered to the staffing requirements or the continuity of senior management personnel.
- **There is a need to revise the railway regulatory framework to incorporate regionally agreed-upon standards.** A periodic review of legislation and other legal instruments can ensure that regional and international practices remain current. *A draft Railways Regulation Act is currently with Ministry of Justice (MOJ) for final vetting before submission to Cabinet.*

MTPW, with support from the World-Bank-financed Southern Africa Trade Connectivity Project, intends to develop an independent Rail and Maritime Regulatory Authority of Malawi (RAMRAM). This body is expected to offer technical support to:

- Develop and recommend legislative reforms in both sub-sectors that will define the mandate, functions, and operations
- Draft safety, technical, and economic regulations for both sectors
- Design the institutional framework, human resource requirements, and general administrative procedures
- Develop the schedules and instruments for the execution of regulatory roles
- Recommend a sustainable annual work plan and budget framework for revenue and expenditure for the regulatory authority

G

Box 10. Gender-inclusive policies for Malawi's workforce can help build capacity to develop transport systems and services

The unequal status of women in Malawi is complicated by the general poverty and discriminatory treatment in the family and society. Malawi ranks 145 of 188 countries on the United Nations Gender Inequality Index and 116 of 153 countries on the Global Gender Gap Index. Gender-imposed limitations in economic participation because of socio-cultural norms threaten women's potential to effectively contribute towards the family, community, and nation.

Though Malawi records impressive gains on the Human Capital Index (HCI), rising from 0.36 to 0.41 over the last 10 years, population growth continues to keep women excluded from economic opportunities and learning. Discriminatory customary laws and norms in Malawi also contribute to gender disparities in asset ownership and the status of women. Female-headed households tend to have fewer assets and less access to infrastructure and basic services than male-headed households, with poverty headcount rates of female-headed households almost 9.5 percent points higher.

A gender analysis in the transport sector was undertaken to facilitate affirmative action in the attraction, selection, retention, and advancement of women professionals. According to data from the International Labor Organization, women are underrepresented in the transport sector (0.1 percent of women participate in the transport, storage, and communication sector compared to 2.9 percent of men; 0.2 percent of women work in construction compared to 2.9 percent of men). While the focus of the analysis is on the road sector, it makes several recommendations to more broadly support the implementation of the Gender Equality Act, the National Transport Policy, and National Construction Industry Policy, and identifies policies and practices to enhance women's career prospects. It provides a framework for the development of Ministerial-level Gender Action Plans to impart the medium- and high-level skills necessary to create a more diverse transport sector talent pool.

Multi-modal recommendations

	Pillar	Responsible agency	Timeline for implementation	Criticality
Multimodal integration				
Update a feasibility study for the Sena line rail bridge. A detailed economic and financial analysis, with robust climate modeling and vulnerability analysis, and presenting all financing instruments as well as participation parameters, can help redefine the roles of public and private stakeholders in rail connectivity.	Finance/Connectivity	MTPW	Short term	High
Make it mandatory to conduct an integrated Climate Risk and Vulnerability Assessment for all transport infrastructure projects. The NTMP recommendation remains highly pertinent to all transport modes.	Governance	National Government	Short term	High
Advance institutional reforms that strengthen both regulatory oversight and rationalize service provider mandates for air, railway, and waterway sector development. Create and enable an independent regulator for the rail and waterway sub-sectors to secure stronger technical, economic, environmental, and safety coordination in line with national and regional goals. The capacity of the new CAA must also be bolstered in proportion to sectoral operations.	Governance	MTPW	Short term	High
Nurture industry buy-in to the National Logistics Forum. Ensure that the platform encourages all stakeholders with fairness and equity to help unlock potential opportunities for private operators, and ultimately support reductions in the cost of transport.	Governance	National Government/ Industry stakeholders	Short term	Medium
Actively participate in Corridor Management Committees for the Nacala, Beira, and North-South (Durban) Corridors. Draw on national data to monitor and evaluate sub-sector operational and financial performance metrics for both national and regional reporting.	Governance	National Government stakeholders	Short term	Medium
Design crisis response mechanisms to provide emergency recovery support following an eligible crisis or emergency. Ensure that contingency allocations are made available in RMF on an annual basis.	Finance/Connectivity	RFA	Medium-term	High
Empower ADL as airport operator to levy, retain, and manage aeronautical and non-aeronautical revenues for airport development partnerships, This includes further refinement of the institutional, legal, regulatory, and policy framework in Malawi's air transport sector to foster a favorable environment for industry development. A feasibility analysis of PPP opportunities for airport operations and capital improvements should be further pursued by the MTPW.	Governance/Finance	National Government/ MTPW/PPPC	Medium-term	High
Gradually implement SAATM in accordance with YD articles. Airline competition and market access, including fifth freedom rights, aligning taxes and tariffs, and cross-border investment, offer the greatest potential to improve industry growth prospects.	Connectivity	National Government	Medium-term	Medium

Notes: short-term (1 year); medium-term (2-3 years); long term is +3 years

WORLD BANK GROUP
Transport

04

Financing the transport sector and strengthening public investment management

Sustainability of financing and improving commercial orientation are crucial pillars of a modern transport sector that serves both people and firms. Like in many developing economies, Malawi's need for investments are substantial. With high sovereign debt stock and a tight fiscal space, prioritization is critical, as is increased private sector participation in infrastructure and service delivery. Improving performance monitoring frameworks and governance accountability can yield significant gains.

Public investment management: Balancing the fiscal space for transport infrastructure

A reliance on domestic borrowing for transport investments is likely to place additional pressure on debt sustainability

The COVID-19 pandemic has compounded Malawi's economic challenges. The transport sector, together with tourism, accommodation, and food services; wholesale and retail trading; and manufacturing, was among the hardest hit. Depressed demand during this period saw the transportation and storage services sector contract by 7.1 percent. Public policy responses to the pandemic increased government expenditure when government revenues had fallen, widening the fiscal deficit. The Malawi Covid-19 Socio-Economic Recovery Plan: 2021-2023 ambitiously recommended a MWK1 trillion-local currency bond program to kick-start fifteen large scale infrastructure development projects.

Post-COVID-19 recovery remains elusive, creating new fiscal pressures, concerns over debt sustainability, and increased income inequality. According to the most recent Malawi Economic Monitor:

- An adjustment by the Reserve Bank of Malawi (RBM) to the official exchange rate for MWK in May 2022 devalued it by 25 percent as a near-term effort to boost the export competitiveness of Malawian firms and limit imports. This was expected to help rebalance the foreign exchange market and the country's foreign reserve position.
- Headline inflation rose to 25.9 percent in September 2022. In response, the RBM increased its key policy rate to 18 percent in October 2022, following an increase from 12 percent to 14 percent in April 2022.
- Malawi's external and public debt is in debt distress, as informed by the International Monetary Fund (IMF)-The World Bank conducted a Debt Sustainability Analysis in November 2022 and is negotiating a debt restructuring.
- Domestic debt financing through commercial borrowing to meet the FY2022/23 budgeted deficit (7.7 percent of GDP in June 2022) depends on high local market capitalization.

The strength of Malawi's PIM institutions is generally comparable to other Sub-Saharan African countries

Figure 48: Malawi PIM Assessment Score Comparisons (2018)

Note: The further away from the center, the higher the PIMA score.

Source: IMF

Stronger public investment management is needed to increase efficiency and returns on investment

The quality of public investment depends on the efficiency of the Public Investment Management (PIM) framework. On average, countries lose over 1/3 of potential benefits from infrastructure investment due to inefficiencies (IMF 2019). Poor project appraisal, rent-seeking, corruption in procurement processes, and inadequate maintenance are all examples of inefficiencies that are detrimental to societies. Quality infrastructure is closely linked to good infrastructure governance (IMF 2020b). Efficient public investment management has been found to double the growth impact of public investment (IMF 2015). Understanding the quality of PIM is thus crucial to increasing the efficacy of public expenditure for growth and poverty reduction.

Malawi's institutional framework performs stronger on coordination, infrastructure finance, and budgeting for investment, but ineffective project appraisal, procurement, and availability of funding are major constraints (IMF 2018). There is a need to focus on improving the implementation and enforcement of the existing framework of laws, regulations, and procedures that support PIM. Procurement processes are slow and significantly delay execution.

There are multiple weaknesses in several phases of the investment management process. Apart from large-scale and externally financed projects, feasibility studies and formally established cost-benefit analyses are not systematically conducted or reviewed. Weaknesses are observed in terms of capacity and information systems for monitoring asset conditions and service level performance. Project selection and ex-ante and ex-post assessments are not conducted systematically, resulting in low-quality projects, which face fund shortage during implementation. A low rate of execution of investment expenditure has also been observed over several years.

G

Despite earlier efforts, Malawi's political economy has led to slow sector transformation, marked by inadequate fiduciary controls and accountability

Public Procurement and Disposal of Assets (PPDA) Act (2017) establishes Internal Procurement and Disposal Committees (IPDC) and Procurement and Disposal Units (PDU) in all Ministries and Departments

The PPDA Act calls upon responsible oversight bodies for procurement and awarding of contracts in the Ministries and Departments. The Act enables open advertisement of procurement opportunities, universal eligibility, and an effective complaint handling mechanism. It is considered conducive to supporting participation from international or multi-national service providers.

PPDA has a dedicated website for sharing information on notice of procurements placed in newspapers (adverts) and public notification of contract awards. After PPDA approval, the Government Contracting Unit (GCU) confirms draft contracts include details of relevant conditions and then evaluates the implementation readiness for contract management.

The PPDA has identified the RA as an agency to pilot the new Government e-procurement system. The RA, in turn, has engaged consultants to develop an electronic procurement and contract management system. The pilot will integrate the RA's procurement and contract management system.

The Public Finance Management (PFM) Act (2022) brings greater transparency to public expenditure, including greater specificity in the reporting requirements of SOEs

Explicit debt management provisions of the new PFM Act include the preparation of a medium-term debt management strategy and an annual borrowing plan, as well as formal establishment of a Debt Retirement Fund, which requires time-bound publication - via the *Gazette* – to ensure transparency.

The appointment of a Comptroller of Internal Audit reporting directly to the State Treasury strengthens fiduciary controls. The Bill also elaborates 'Discipline and Offences' and extends such controls beyond Controlling Officers to include all public officers.

However, Cash Management and Commitment Control still requires greater regulatory coordination, entity cash planning, clear commitment, and expenditure limits in the automation of the Integrated Financial Management Information Systems (IFMIS).

Empowering the Anti-corruption Bureau (ACB) brings additional accountability through watchdog institutions.

F

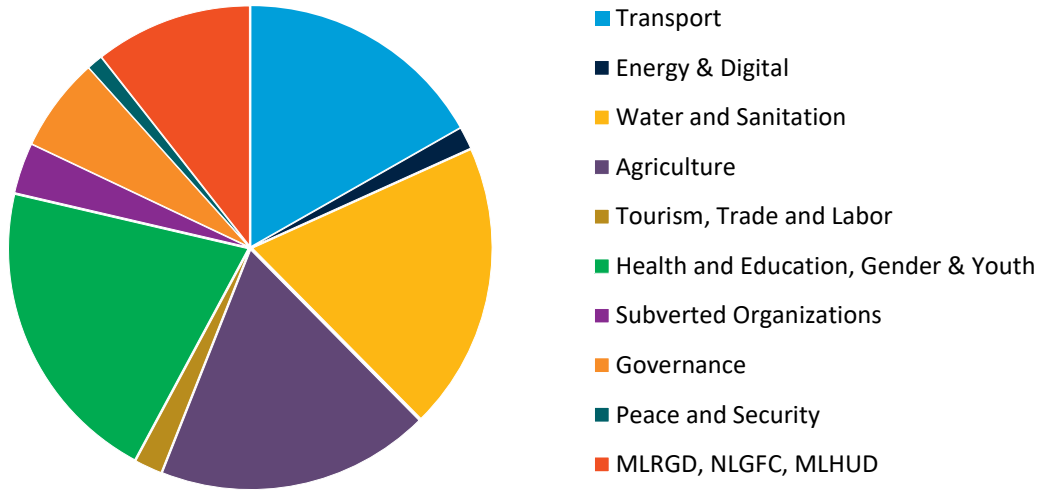
Transport is among the top sector allocations funded by Malawi's Public Sector Investment Program

About 70 percent of the Public Sector Investment Program (PSIP) budget is funded through development partner resources

The PSIP, which presents a five-year rolling plan of project and program commitments, is primarily financed by development partner concessional loans and grants (Part 1) and Government revenue and expenditure (Part II). Malawi's FY2022/23 PSIP allocates MWK820.667 billion (approximately $793.76 million) equivalent to 6.7 percent of 2021 GDP (MWK12.26 trillion). Of 160 on-going projects, thirty-one are road infrastructure projects, and there is one each in waterways, rail, and air transport under MPTW. The transport sector allocations amount to MWK121.37 billion (about $117 million).

Projects can also be financed through PPPs. Of eight identified PPP projects in the PSIP, four are with MTPW, with a focus on the rehabilitation of dry ports and the specific requirements of the Chipoka, Chilumba, and Nkhatabay ports. In addition, there will be long-term projects to extend a Northern branch to the railway network. The PSIP also includes plans for the Ministry's Plant & Vehicle Hire and Equipment Services department and reinstatement of the central materials lab on a commercial basis.

Figure 49: Transport represents around 16 percent of the 2022-2023 PSIP



Source: Authors calculations

In August 2021, the Government launched a Local Currency Infrastructure Bond (LCIB) to accelerate key infrastructure development through issuances that aim to raise MWK1 trillion. The first two auctions raised MWK13.35 billion each at 23.25 percent interest. The PSIP identifies fifteen projects to be financed by the LCIB, nine of which are in transport, including the 201-km Bangula-Marka Railway Rehabilitation Project. It also plans to finance more than 1,200 km of road upgrades, but some of this will is now expected to be supported by donor partner financing.

F

Private participation in infrastructure is still nascent in the region where opportunities for cross-border investment are limited by inadequate capital

Malawian banks are beginning to play a role in infrastructure finance, though limited market borrowing remains the norm

Malawi has a total of nine commercial banks, though the banking sector is dominated by the two largest – the National Bank of Malawi and Standard Bank. These two hold about 46 percent of the total banking sector deposits, 44 percent of total loans, and 41 percent of total liabilities.

Lending is concentrated among a few borrowers; 50 percent of all loans are to the top 10 borrowers in the market, while 32 percent of total bank assets went to private sector lending (as of December 2019), which is very low.

Investment horizons of 10 years to 30 years are essential for mobilizing long-term finance for infrastructure. While the local infrastructure bond program offers a 10-year tenor, most Malawian banks do not lend long-term; nearly all deposits had maturities of less than a year. The National Bank of Malawi, Standard Bank, and Old Mutual have participated in the RFA bond program.

The institutional investors landscape in Malawi comprises 29 registered pension funds, of which 22 are private, six are quasi-public (public institutions or SOE-linked funds), and one national public mandatory fund. The domestic institutional investor base is estimated at $2.5 billion (2019) or 32 percent of 2019 GDP. Of the total pension assets of MWK878 billion, 57 percent is held by two funds – Old Mutual Unrestricted Fund (30 percent) and NICO Unrestricted Fund (27 percent). Asset concentration in the insurance sector is more pronounced. Two companies – Old Mutual and NICO Life – hold 98.5 percent of the total assets, which was worth MWK732 billion. The country has three other insurance companies (Vanguard Life, CIC Life, and SMILE Life), which are relatively small and new to the market.

Source: 1. EIU 2020, Infrascope Index; 2. WB PPI Database, 2022

Figure 50: Malawi's PPP framework score (2020)

Mature (80-100) | Developed (60-79) | Emerging (30-59) | Nascent (0-29)

Category	Score / 100	Rank / 71	All countries (average score)
OVERALL SCORE	42	62	56
1) REGULATIONS	48	54	59
2) INSTITUTIONS	61	=35	57
3) MATURITY	43	=60	59
4) INVESTMENT & BUSINESS CLIMATE	43	=64	62
5) FINANCING	15	=69	44

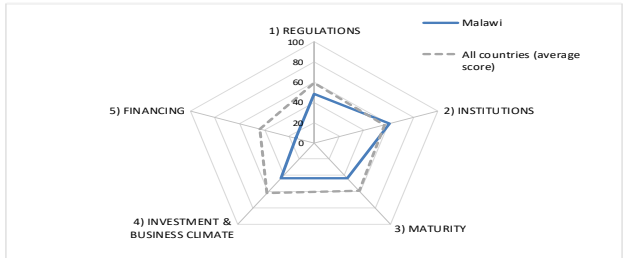
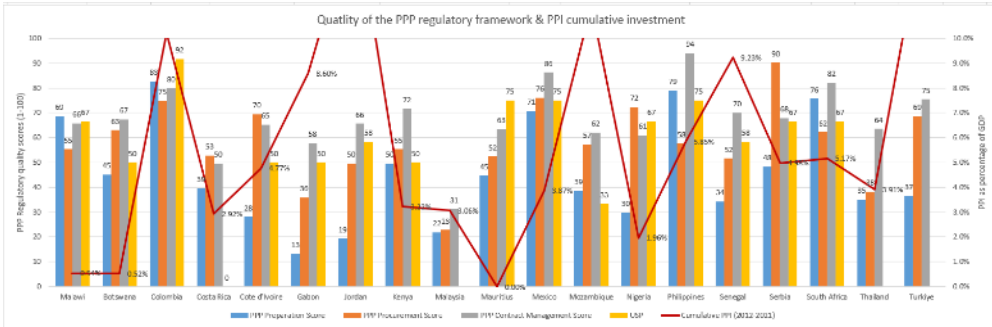


Figure 51: Quality of PPP Regulatory Framework and PPI Cumulative Investment



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Box 11. PPP: Mobilizing finance for development

Malawi's PPP Framework was updated in 2021, strengthening prospects for further private sector investment

Today, PPPs are emerging as an important modality for financing infrastructure projects in several developing countries. In SSA, one of the main factors contributing to the transport infrastructure gap is the difficulty in finding bankable projects due to limited revenue generation capacity. While seaports, airports, and some (mining) railroad projects have been able to mobilize the private sector through PPP schemes, roads and secondary infrastructure find it more challenging as they often lack the traffic to generate sufficient revenues from users, even when they are economically justified.

As funding is limited, a careful evaluation of the investment pipeline based on the economic return is crucial. Projects with high potential to develop new business and job opportunities should also be analyzed in the context of their capacity to increase tax collection and user revenues. A strong institutional and regulatory framework is paramount. The PPP Commission (PPPC), in close collaboration with the Ministry of Finance, is the agency responsible for advising contracting authorities on prospective PPP projects. The PPPC promotes efforts to mobilize private sector financing and/or private participation in public service delivery and facilitating due diligence assessments of affordability, value-for-money, feasibility, and contingent liabilities associated with PPP projects.

MW2063 identifies several major initiatives to increase private capital mobilization and looks to donor partners for support in the following areas:

- Further analysis and refinement of instruments, including sovereign guarantees and design of special development funds targeting private sector investor incentivization towards economic infrastructure
- Legislating the utilization of pension funds for infrastructure projects
- Evaluating the economic benefits of appropriating a fixed proportion of domestic revenue for infrastructure development through its public finance management laws
- Facilitating fiscal guarantees towards bankable private sector-led investment projects to attract external commercial loans

Public investment management recommendations

	Pillar	Responsible agency	Timeline for implementation	Criticality
Public Investment Management Recommendations				
Promote dialogue among MDA, Reserve Bank of Malawi, and private sector on existing issues and arrive at a way forward based on regional learnings on public and private sector partnerships, quasi-commercial investments. Collaborate with other countries to explore bundling of transport infrastructure assets to attract regional and international investors. Continue reforms in line with SADC capital markets integration program.	Governance/Finance	PPPC/MTPW	Short term	Medium
Develop regulations for long-term finance instruments, including pension and insurance funds. Malawi can look to review prospects of sovereign guarantees, partial-risk guarantees, and introduction of special development funds to empower private sector investors and catalyze financing for transport infrastructure.	Governance	Ministry of Finance & Economic Affairs	Medium term	Medium
Increase accountability within the SOE board by allowing greater freedom of action in terms of operational effectiveness and borrowing options. Re-establish the central role of SOE within the long-term finance agenda, taking into consideration that transport SOEs will require transparent financial public disclosure before they can attract private capital.	Governance	Ministry of Finance & Economic Affairs	Medium term	Medium

Notes: short-term (1 year); medium-term (2-3 years); long term (3+ years)

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Appendix

Benchmarking – structural and aspirational peers and regional comparisons

To identify Malawi's comparator countries, the team combined inputs from the Country Scan Tool with local country context.

01 Structural peers

Burundi, Rwanda, and Uganda. These countries have similar economic and structural characteristics as Malawi.

02 Regional peers

Mozambique, Tanzania, and Zambia. These are neighboring countries that are also useful benchmarks for development context.

03 COMESA and SADC

Malawi, Comoros, Democratic Republic of Congo, Eswatini, Madagascar, Mauritius, Seychelles Zambia, and Zimbabwe are members of both COMESA and SADC.

COMESA countries also include Burundi, Djibouti, Egypt, Eretria, Ethiopia, Kenya, Libya, Sudan, Tunisia, Somalia, Rwanda, and Uganda.

SADC countries also include Angola, Botswana, Lesotho, Mozambique, Namibia, South Africa, and Tanzania.

04 Other categories

Malawi's averages will also be compared with SSA, low-income (LICs), and lower-middle income (LMICs) country averages.

The criteria for selecting structural and aspirational peers are:

- GDP per capita (constant 2010 $)
- Population 2019
- Trade (% of GDP)
- Agriculture, value added (% of GDP)
- Human Capital INDEX
- Country policy and institutional assessment

Source: RFA

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Annex I: Performance Metrics for Malawi Vision 2063 and Nationally Determined Contributions

“Malawi Vision 2063” establishes long-term sector performance indicators that aim to expand coverage of paved roads, improve passenger services, increase ridership levels, and generate freight modal shift

Paving 85 percent of the road network will require unsustainable levels of capital and recurrent expenditure. Reaching 45percent by 2030 would require approximately $2 billion in upgrading, with an additional $270 million annually for periodic and routine maintenance, more than 2.5 times the level of resources currently committed through the annual national budget.

A PPP and well-balanced concession that mobilizes a blended finance solution is likely to be optimal to finance commercially oriented development for airport terminals and airfield infrastructure. A policy of liberalized air services would also foster an enabling environment.

Table A1.1 MW2063 Primary Indicators

Indicators	Baseline value	Milestone (2030)	Milestone (2040)	Milestone (2042)	Milestone (2050)	Milestone (2060)	Target (2063)
Bitumen roads as proportion to road network (percentage)	**30.65 (2020)**	45	57.5	60	70	82	**85**
Passenger processing capacity of primary international airports (pax/hr)	**300 (2018)**	1,000	1,000	1,000	2,000	2,000	**2,000**
Total freight by rail (million tonnes)	**2.28 (2017)**	3.0	4.25	4.5	5.75	6.75	**7.0**
Capacity of major ports on Lake Malawi (daily pax)	**TBD**	TBD	TBD	TBD	TBD	TBD	**TBD**
Capacity of major ports on Lake Malawi (daily cargo)	**TBD**	TBD	TBD	TBD	TBD	TBD	**TBD**
Population conveying with public transportation (pax per 12-hour day)	**287,000 (2019)**	350,000	560,000	600,000	750,000	950,000	**1,000,000**

Source: MW2063

“Malawi Vision 2063” establishes long-term sector performance indicators that aim to expand coverage of paved roads, improve passenger services, increase ridership levels, and generate freight modal shift (Cont’d)

Table A1.2. MIP1 Annual Targets

Indicators	Baseline	2021	2022	2023	2024	2025	2030
SDG9.1.1 Rural Access Index:	23.1	24	25	31	31	40	50
Tarmac roads constructed (new/upgraded in km)	0	180	189	190	195	210	2,329
Average freight cost (MKW/tonne-km)	115	114	114	119	110	108	99
Passenger and freight volumes by mode							
Road passenger (number)	296,046	305,520	315,296	332,065	335,798	346,544	405,654
Road frieght (tonnes)	2,574,000	2,745,000	2,795,000	2,845,000	2,895,000	2,975,000	2,730,000
Rail passenger (Pax/km)	2,115,700	2,388,100	2,567,200	2,695,560	2,830,340	2,971,860	3,792,920
Rail freight (billion tonne-km)	2.94	3.675	4.41	2.37	6.740	7.61	14.9
Water passenger (number)	3,626,844	2,847,300	2,529,800	2,605,694	2,683,865	2,764,381	3,204,674
Water freight (tonnes)	400,600	10,600,000	10,800,000	11,000,000	11,200,000	11,400,000	12,400,000
Road traffic deaths per 100,000 population (number)	7	4	3	3	2	2	1

Regulatory reforms in the waterway sector must be prioritized to strengthen management and performance monitoring of concessionaires, set higher safety standards, and ensure equal access to infrastructure among prospective service providers capable of increasing market share among both passengers and cargo.

Urban public transportation systems will also require national-level coordination to implement more stringent regulations, route and network planning, and routine data management to effectively increase ridership, improve safety, and meet mobility demands in major urban centers and emerging secondary cities.

Source: MW2063

Four transport sector climate adaptation measures are identified in Malawi's updated nationally determined contributions (NDC) (July 2021)

Table A1.3. NDC Measures for Climate Adaptation

NDC measure	Line ministry focal point	Key Implementing Agencies	Adaptation and resilience co-benefits	Total estimated investment
Model shift: Private-to-passenger transport to increase the share of passenger transport from 10 percent at present to around 30 percent in 2040, reducing GHG emissions from gasoline and diesel use	MOTPW, MOLG (DRTSS)	Passenger associations, bus operators associations, city councils, private transport	Increased resilience of transport infrastructure. Improved health and reduction of harmful local air pollutants, enhancing resilience of population to disease and adverse climate impacts.	$138 million uc: $41m c: $97m
Modal shift: Road-to-rail freight increased use of rail under the NTMP, resulting in reduced diesel consumptions and GHG emissions from road freight transport	MOTPW (Departments of Rail and Public Transport)	Road Transporters Association, railway operators, district and city councils		$12.9 billion uc: $6.45m c: $6.45m
Transportation fuel: Achieving an average national blend rate of 20 percent ethanol, resulting in reduced GHG emissions from gasoline consumption by road transport	MOTPW, MOE (Department of Energy Affairs)	MERA, private sector	Decreased dependence on imported fossil fuel energy products. Improved health and reduction of harmful local air pollutants, enhancing resilience of population to disease and adverse climate impacts.	$506 million uc: $253m c: $253m
Transportation fuel: Commercial production of biodiesel fuel reaching 55 million liters and resulting in reduced GHG emissions from diesel consumption in road transport	MOTPW, MOE (Department of Energy Affairs)	MERA, MOA, DADOs, private sector		$: 157 million uc: $141m c: $16m

Source: NDC

Transport investments constitute one-third of the total funding required for all identified adaptation measures through 2040

Transport sector targets can be achieved through **formal and frequent regular services that leverage proper network plans, subsidy schemes, and motorization management policies**.

Freight modal shift outcomes appear highly dependent on the national (and regional) railway network extensions. The total capital requirements is almost $14 billion in the National Adaptation Plan, with railways accounting for more than 90 percent of the investments. For significant public and private sector coordination, there needs to be a careful analysis of financial and economic viability.

Achieving biofuel targets may impede agricultural diversification, as it will require additional land and water intensity. Expansion in the production of sugarcane for feedstock and investment in additional refinery capacity and distribution equipment will depend on investments from the private sector. Its potential impact on fuel prices is not yet evident.

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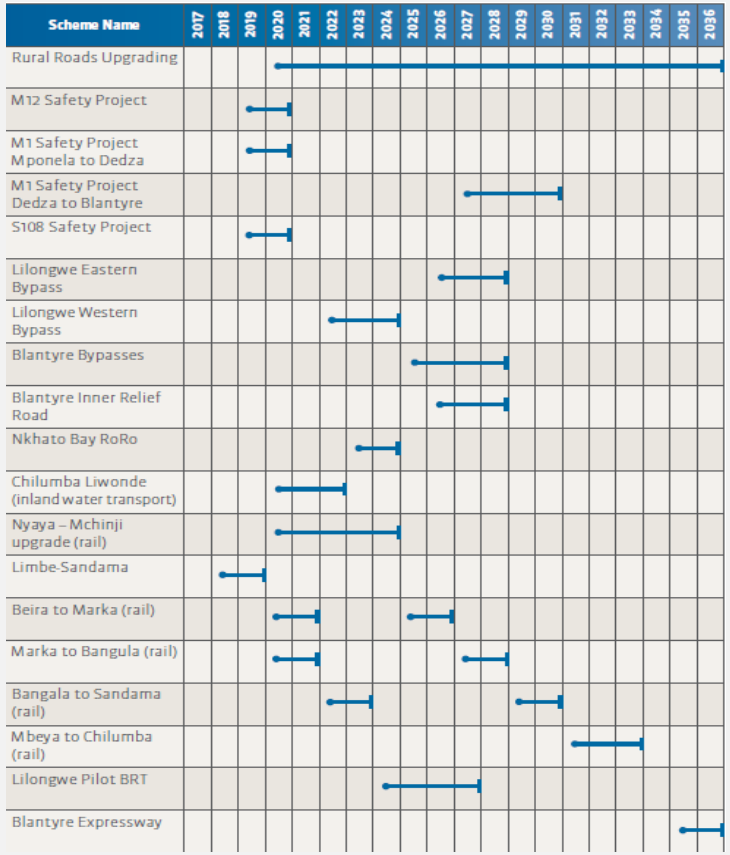
Annex II: Implementation monitoring of the national transport master plan

National Transport Master Plan – preliminary programming of major projects

Table A2.1. Major NTMP Projects Implementation Status, 2017-2036



The key observations about the implementation status and funding commitments of the NTMP's first five-year program are:

- There are significant deviations in the level of road sector investment, with actual road works amounting to more than $820 million compared to plans for $300 million (for rural road upgrades, reconstruction, and major works commitments). More balanced programming will be crucial in the coming years.
- There has been no meaningful progress on urban transport investment or public transport reforms identified within the Master Plan.
- Approximately $75 million was mobilized for rail sector development, meeting about 20 percent of the investment plan. Important works needed for safety management were deferred.
- While much of the terminal and safety compliance activities undertaken at Kamuzu International Airport were completed, the Chileka Airport's needs continue to be critical, but achievable in the second five-year period. There remains some urgency in the rehabilitation or upgrade of key incomplete aeronautical assets such as airfield pavements and navigation equipment.

Source: NTMP

National Transport Master Plan – implementation status

Table A2.2. NTMP – Road Sector Projects and Programs ($, 000)

Major projects	FY2017 to FY2022		FY2022 to FY2027	FY2027 to FY2032	FY2032 to FY2037	Total
	Planned	Actual				
Rural roads upgrade	75,000	821,427	214,000	224,000	195,000	708,000
District transport plans	40,000	DDF/ CDF budgets	56,000	56,000	56,000	208,000
M1 safety project	30,000	Not implemented				30,000
M12 safety project	40,000	Not implemented		70,000		110,000
Lilongwe western bypass			40,000			40,000
Lilongwe eastern bypass				70,000		70,000
(Blantyre) Mthandizi-Mpingwe			8,000			8,000?
(Blantyre) Misesa Soche Hill-Manja				9,000		9,000?
Blantyre inner relief road				100,000		
Blantyre elevated express way					182,000	182,000
Reconstruction	150,000	**				150,000
Planned reconstruction	9,000	**	21,500	54,000	82,500	167,000
Major works committed	197,000	**				197,000?
Major works (planned)	40,000	634,990	125,000	105,000	85,000	355,000

Source: Malawi NTMP. Ministry of Transport and Public Works

National Transport Master Plan – implementation status

Table A2.3. NTMP – Urban Transport Projects and Programs ($,000)

	FY2017 to FY2022		FY2022 to FY2027	FY2027 to FY2032	FY2032 to FY2037	Total
Major Projects	**Planned**	**Actual**				
BRT design and feasibility	5,000	Not implemented	3,000			8,000
BRT pilot			60,000	60,000		120,000
BRT schemes				20,000	10,000	30,000
Mzuzu bypass	2,000	--	6,000			8,000
Coach terminals	10,000	Not implemented	20,000	20,000	20,000	60,000
Road widening schemes	22,000		11,000	11,000	11,000	55,000
Minor Capital Works						
Traffic signal programs	5,000	Not implemented	10,000	10,000	10,000	35,000
Traffic management	5,000	Not implemented	3,000	3,000	3,000	14,000
Cycle lanes	5,000	Not implemented	12,000	12,000	12,000	41,000
Footways	5,000	Not implemented	15,000	15,000	15,000	50,000
Design guidelines for roads - urban areas	500	Not implemented				500?
Road safety programs	5,000	Not implemented	3,000	3,000	3,000	14,000
Cycling	3,000	Not implemented	1,000	1,000	1,000	6,000
Truck routes	1,000	Not implemented	1,000	1,000	1,000	4,000
Car parking plans	1,000	Not implemented				1,000
Park and ride operations			5,000			5,000
Street lighting	2,000	Not implemented	2,000	2,000	2,000	8,000
Institutional - Regulatory						
Establish Urban Areas Transport Authority	3,000	Not implemented				3,000
Capacity building	5,000	Not implemented				5,000
Sustainable Urban Transport Policy	500	Not implemented				500
Develop public transport networks	1,000	Not implemented				1,000
Develop standards for low emission vehicles			1,000			1,000

Source: Malawi NTMP. Ministry of Transport and Public Works

National Transport Master Plan – implementation status

Table A2.4. NTMP – Rail Sector Projects and Programs ($, 000)

	FY2017 to FY2022		FY2022 to FY2027	FY2027 to FY2032	FY2032 to FY2037	Total
	Planned	Actual				
Major Projects						
Beira-Marka			158,000			158,000
Marka-Bangula				249,000		249,000
Bangula Limbe					242,000	242,000
Nkaya-Mchinji	254,000	63,970	254,000			508,000
Nkaya-Limbe	80,000	11,560				80,000
Mbeya-Chilumba				484,000	484,000	968,000
Liwonde intermodal facility (wet port)	10,000	Not implemented				10,000
Minor Capital Works						
Train control - North line	18,000	Not implemented				18,000
Train control - South line	11,000	Not implemented				11,000
Level crossings	5,000	Not implemented	3,000	3,000	3,000	14,000
Limbe-Balaka-Nayuchi pax service	2,000	Not implemented				2,000
Mchinji-Salima pax service	2,000	Not implemented				2,000
Heritage rail			10,00	2,000	2,000	14,000
Institutional/Regulatory						
Establish RAMRAM	2,000	In-process				2,000
RAMRAM running costs	1,250	Not implemented	1,250	1,250	1,250	5,000
Business planning/process	5,000	Not implemented	5,000	5,000	5,000	20,000
Capacity Building - Dept of Rail	4,500	Not implemented				4,500
Capacity Building - RAMRAM	1,500	Not implemented				1,500

Source: Malawi NTMP. Ministry of Transport and Public Works

National Transport Master Plan – implementation status

Table A2.5. NTMP – Inland Water Transport Projects and Programs ($, 000)

	FY2017 to FY2022		FY2022 to FY2027	FY2027 to FY2032	FY2032 to FY2037	Total
Major Projects	**Planned**	**Actual**				
NhkataBay RoRo terminal			25,000			25,000
Chipoka port			15,000			15,000
Chilumba port			2,000			2,000
Nkhotakota jetty			5,000			5,000
Upper Shire navigation						
Nkhata Bay shipyard				30,000	45,000	75,000
Liwonde river port					20,000	20,000
New passenger vessels	5,000	Not implemented				5,000
Replacement of passenger vessel fleet			10,000			10,000
RoRo vessels			15,000			15,000
Small landing projects	3,000	500				3,000
New pax routes	1,000	Not implemented				1,000
Regular freight service	1,000	Not implemented				1,000
Institutional/Regulatory						
RAMRAM	1,000	In process				1,000
RAMRAM running costs	1,250	N/A	1,250	1,250	1,250	5,000
Merge concessions	1,000	Not implemented				1,000
Improve safety regulations	5,000	Not implemented				5,000
Training	1,000	Not implemented				1,000
Asset management plan	1,000	Not implemented				1,000

Source: Malawi NTMP. Ministry of Transport and Public Works

National Transport Master Plan – implementation status

Table A2.6. NTMP – Air Transport Projects and Programs ($, 000)

	FY2017 to FY2022		FY2022 to FY2027	FY2027 to FY2032	FY2032 to FY2037	Total
	Planned	Actual				
Chileka terminal	35,000	Not implemented				35,000
Chileka expansion	25,000	Not implemented				25,000
Chileka ATS and fire station			30,000	30,000		60,000
Chileka runway rehab	25,000	Not implemented				25,000
Chileka wayfinding	500	Not implemented				500
Chileka cargo center and apron	40,000	Not implemented	30,000	30,000		100,000
Chileka carpark	10,000	Not implemented				10,000
Chileka backup power	50,000	Not implemented				50,000
Chileka AGL	1,350	Not implemented				1,350
Chileka renaming	1,000	Not implemented				1,000
KIA terminal phase 1 and radar	23,500	35,000				23,500
KIA terminal phase 2					30,000	30,000
KIA AFRR vehicle replacement	4,500	Acquired	4,500		4,500	13,500
KIA ADS-B	800	Not implemented				800
KIA wayfinding	500	Not implemented				500
KIA carpark	3,000	Not implemented				3,000
KIA cargo aprons/warehousing	4,000	Not implemented		6,000	4,000	14,000
KIA runway widening			9,000			9,000
KIA new apron			7,500	7,500		15,000
KIA taxiway strengthening			4,000			4,000
KiA terminal expansions				25,000	20,000	45,000
KIA renaming	1,000	Not implemented				1,000?

Source: Malawi NTMP. Ministry of Transport and Public Works

National Transport Master Plan – implementation status

Table A2.7. NTMP – Air Transport Projects and Programs ($, 000)

	FY2017 to FY2022		FY2022 to FY2027	FY2027 to FY2032	FY2032 to FY2037	Total
	Planned	Actual				
Minor Capital Projects						
Pax statistics records	1,000	Not implemented	1,000	500	500	3,000
Fence minor airfields	3,000	Not implemented				3,000
Dispose of airfields			4,000			4,000
Nkhata Bay airport			95,000	65,000		160,000
Upper air observation station	5,000	Not implemented				5,000
Weather radar			8,000			8,000
Automate meteorology reports			6,000			6,000
External airport security	2,500	Not implemented	3,000	3,000	4,000	12,500
Institutional – Regulatory						
Establish CAA	10,000	150				10,000?
CAA running costs						
Digitization			2,500			2,500?
Aeronautical Information Service (AIS)	850	Not implemented				850?
Automatic Dependent Surveillance – Broadcast (ADS-B)			800			800?
Adopt unmanned aircraft system traffic management (UTM)			150			150?
Extend ADL mandate		Not implemented				
Introduce second handling company		Not implemented				
GOM sells stake in Malawi Airlines		Not implemented				

Source: Malawi NTMP. Ministry of Transport and Public Works