



Project No. 101069500—AfroSAFE

AfroSAFE: Safe System for radical improvement of road safety in low- and middle-income African countries

Horizon Europe—European Union’s funding programme for research and innovation

Deliverable 4.1: Safe Vehicles: Existing standards for vehicle safety, including suggestions for updates

Deliverable due date: 2024-01-31

Project start: 2022-09-01
Duration: 48 months

Lead contractor for this deliverable:
Chalmers Industriteknik, Sweden

Dissemination Level

PU	Public	✓
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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Revision History

Version	Date	Comment
0.9	3 November, 2023	First completed draft version
0.91	11 December, 2023	Updated version after first review
0.95	15 January, 2024	Revised version for second review
1.0	31 January, 2024	Final version

Project funding

This project has received funding from the Horizon Europe, the European Union’s funding programme for research and innovation under grant agreement No 101069500.

This publication reflects only the authors’ view. Responsibility for the information and views expressed therein lies entirely with the authors. The European Commission is not responsible for any use that may be made of the information it contains.

The present document is a draft; the approval from the EU Commission is pending.

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Glossary

AfroSAFE	EC funded project: “Safe System for radical improvement of road safety in low- and middle-income African countries”
ARS	African Regulation Standards
ARSO	African Organization for Standardisation
CFC	Chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) are fully or partly halogenated hydrocarbons that contain carbon (C), hydrogen (H), chlorine (Cl), and fluorine (F), produced as volatile derivatives of methane, ethane, and propane.
CIF	Cost, Insurance and Freight, under Incoterms, the seller delivers the goods, cleared for export, onboard the vessel at the port of shipment, pays for the transport of the goods to the port of destination, and also obtains and pays for minimum insurance coverage on the goods through their journey to the named port of destination.
DVLA	Driver and Vehicle Licensing Authority (Ghana)
EU	European Union
Euro NCAP	European New Car Assessment Program
FMVSS	Federal Motor Vehicle Safety Standards
Global NCAP	Global New Car Assessment Program
GSA	Ghana Standards Authority
Japan NCAP	Japan New Car Assessment Program
JCT	Japan Car Trade
JEVIC	Japan Export Vehicle Inspection Centre
L	Motor vehicles with less than four wheels and some lightweight four-wheelers.
L ₃	A two-wheeled vehicle with an engine cylinder capacity in the case of a thermic engine exceeding 50 cm ³ or whatever the means of propulsion a maximum design speed exceeding 50 km/h.
L ₇	A vehicle with four wheels whose unladen mass is not more than 400 kg (550 kg for vehicles intended for carrying goods), not including the mass of batteries in the case of electric vehicles and whose maximum continuous rated power does not exceed 15 kW.
LTRA	Land transport Regulatory Authority (Tanzania)
M	Power-driven vehicles having at least four wheels and used for the carriage of passengers (e.g., standard car with 2, 3, 4 doors).
M ₁	Vehicles used for carriage of passengers, comprising not more than eight seats in addition to the driver's = 9. (Larger Than Standard Car e.g.: London Cab / E7 Type Vehicle 8 seat + Driver.)
M ₂	Vehicles used for the carriage of passengers, comprising more than eight seats in addition to the driver's seat, and having a maximum mass not exceeding 5 tonnes. (Bus)
M ₃	Vehicles used for the carriage of passengers, comprising more than eight seats in addition to the driver's seat, and having a maximum mass exceeding 5 tonnes. (Bus)
N	Power-driven vehicles having at least four wheels and used for the carriage of goods

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N ₁	Vehicles used for the carriage of goods and having a maximum mass not exceeding 3.5 tonnes. (Pick-up Truck, Van)
N ₂	Vehicles used for the carriage of goods and having a maximum mass exceeding 3.5 tonnes but not exceeding 12 tonnes. (Commercial Truck)
N ₃	Vehicles used for the carriage of goods and having a maximum mass exceeding 12 tonnes. (Commercial Truck)
NCAP	New Car Assessment Program
O	Trailers (including semi-trailers)
OICA	International Organization of Motor Vehicle Manufacturers
RTSA	Road Transport and Safety Agency (Zambia)
RWI	Roadworthiness Inspection (Zambia)
TBS	Tanzania Bureau of Standards
TRA	Tanzania Revenue Authority
UN	United Nations
UNECE	United Nations Economic Commission for Europe
USNCAP	US New Car Assessment Program
VIN	Vehicle Identification Number
WHO	World Health Organization
WTO	World Trade Organization
ZABS	Zambia Bureau of Standards
ZCSA	Zambia Compulsory Standards Agency
ZEMA	Zambia Environmental Management Agency
ZP	Zambia Police
ZRA	Zambia Revenue Authority
ZRST	Zambia Road Safety Trust

Executive Summary

This deliverable, within the European funded project AfroSAFE, has reviewed the existing standards and regulations concerning vehicle import and registration in three African countries – Ghana, Tanzania, and Zambia – related to passenger cars, trucks, and motorized two-wheelers.

The task was based on an investigation of vehicle standards and safety ratings for new and used vehicles (including in-use standards, where applicable.) After consideration of the local African circumstances, this report recommends potential updates for vehicle standards, as well as the need for safety ratings of new and used vehicles. The report concludes with proposals to enhance national guidelines regarding vehicle import and registration.

There is an urgent need to significantly improve the level of crash roadworthiness of imported vehicles to the African countries from the exporting countries. In Europe, a proposal has recently been submitted to the European Parliament by the European Commission for revising and strengthening regulations on exporting used vehicles to a third country. In this proposal, an exporter would then be obliged to prove that a competent authority in the destination country would treat it in a manner like the EU if the vehicle exported is deemed as an end-of-life vehicle in the EU. Further, the vehicle owner must demonstrate that it is indeed not an end-of-life vehicle through a competent authority. This proposal both strengthens circularity of vehicles as well as controls the export of the lowest level vehicles in the EU fleet. As most vehicles in Africa are imported from Europe, Japan, and the USA, the eventual passage into regulation and adoption can have a resounding impact on road safety by limiting and stopping the export of vehicles that do not fulfil the environmental standards or roadworthiness requirements of the exporting nation.

The awareness of Consumer rating is very low in the three countries. An increased awareness could create a demand for safer vehicles by the public vehicle customers.

South Africa, Nigeria, Egypt, and Tunisia have already adopted the UN regulations. However, Ghana, Tanzania, and Zambia have not yet adopted the UN Vehicle Safety Regulations, which would greatly impact vehicle safety.

There is also the need to develop clear and comprehensive vehicle scrappage policies in these countries that outlines the criteria for identifying end-of-life vehicles.

1 Introduction

This deliverable, within the European-funded project AfroSAFE, has reviewed the existing standards and regulations concerning vehicle import and registration for new and used vehicles in three African countries: – Ghana, Tanzania, and Zambia – related to passenger cars, trucks, and motorized two-wheelers.

Road traffic deaths and injuries remain a major global health and development challenge. The risk of death is three times higher in low-income countries than high-income countries despite these countries having less than 1% of all motor vehicles (World Health Organization, 2023). According to WHO Global status report on road safety 2023, 19% of the traffic accident fatalities occur in the African Region. Vulnerable road users such as pedestrians, cyclists and motorcyclists remain dangerously exposed. Nearly 80% of all roads assessed do not meet a minimum 3-star rating for pedestrian safety, and as cyclist fatalities increase, just 0.2% of all roads assessed have cycle lanes (World Health Organization, 2023). Therefore, there is an urgent need to significantly improve the level of roadworthiness of imported new and used vehicles to the African countries.

The adoption of harmonized technical regulations across the world is important to ensure that new vehicles entering the market are built and sold with a consistent safety standard across the world. New Car Assessment Programmes (NCAPs)¹ have been a driving force for this in many parts of the world such as in the European Union, the United States of America, Japan and other countries. Harmonized technical regulations are a prioritized objective for the United Nations Economic Commission for Europe (UNECE) both globally (United Nations Economic Commission for Europe, 2021) and for Africa through the Safer and Cleaner Used Vehicles for Africa initiative (United Nations Economic Commission for Europe, 2022b).

The need for and importance for the mandatory adoption of these global harmonized technical regulations in low- and middle-income countries was most recently demonstrated by Global NCAP in both Africa and Latin America through their campaigns #SaferCarsForAfrica and #NoZeroStarCars respectively (Global NCAP, 2020, 2022). Global NCAP demonstrated the significantly different standards between a brand-new car manufactured for Africa when crashed head-on against a five-year-old used car of the same make and model manufactured for the European market. The results demonstrated poor occupant and child protection in the African car with severe cabin intrusion likely to have life-threatening injuries or even death to the occupants of the car. On the other hand, the European car sustained less severe damage and would most likely have protected the occupants.

As more countries in Africa gear towards increased industrialization and local manufacture or assembly of new vehicles, harmonized technical regulations will play a key role in ensuring that the African population can enjoy the same level of security and safety in motor vehicles as the European population. This includes adopting and ratifying the key United Nations Agreements for vehicle safety, in particular, the following three agreements:

1. 1958 Agreement concerning the Adoption of Harmonised Technical United Nations Regulations for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these United Nations Regulations²

¹ Read more about Euro NCAP: <https://www.euroncap.com/en/about-euro-ncap/> and Global NCAP: <https://www.globalncap.org/about>

² Full text available at: <https://unece.org/trans/main/wp29/wp29regs>

2. 1997 Agreement concerning the Adoption of Uniform Conditions for Periodical Technical Inspections of Wheeled Vehicles³ and
3. 1998 Agreement concerning the Establishing of Global Technical Regulations for Wheeled Vehicles, Equipment and Parts⁴.

The UN Agreements are managed by the World Forum for Harmonization of Vehicle Regulations or the Working Party 29 (WP.29) of the United Nations Economic Commission for Europe (UNECE). The UNECE is the UN body responsible for global vehicle standards and regulations.

South Africa, Nigeria, Egypt, and Tunisia have already adopted the UN regulations. However, Ghana, Tanzania, and Zambia have not yet adopted the UN vehicle safety regulations, which would greatly impact vehicle safety. The impact and relative risk of fatality without these regulations have been investigated in the report by the United Nations Environment Programme (2020). Therefore, a harmonization of vehicle regulations is one of the most important countermeasures to improve vehicle safety.

In Europe, a proposal (European Commission, 2023b) has recently been submitted to the European Parliament by the European Commission for revising and strengthening regulations on exporting used vehicles to a third country. In this proposal, an exporter would then be obliged to prove that a competent authority in the destination country would treat it in a manner like the EU if the vehicle exported is deemed as an end-of-life vehicle in the EU. Further, the vehicle owner must demonstrate that it is indeed not an end-of-life vehicle through competent authority. This proposal both strengthens the circularity of vehicles as well as controls the export of the lowest-level vehicles in the EU fleet. As the majority of vehicles in Africa are imported from Europe, Japan, and the USA (United Nations Environment Programme, 2020), the eventual passage into regulation and adoption can have a resounding impact on road safety by limiting and stopping the export of vehicles that do not fulfil the environmental standards or roadworthiness requirements of the exporting nation. The need for the passage and adoption of the core UN regulations is further emphasized in the Global Status Report on Road Safety published by the World Health Organization (World Health Organization, 2023) – and will continue to play a key role in improving vehicle safety standards and environmental impact of those vehicles in importing countries irrespective of the source country (United Nations Environment Programme, 2020; World Health Organization, 2023).

Over the last two decades, the number of two- and three-wheelers motorcycles has grown rapidly in low- and middle-income African countries attributed by the availability of low-cost motorcycles from China and India. Most motorcycles are used for commercial transportation of passengers and goods popularly known as ‘bodaboda’. Bishop and Courtright (2022) estimated 27 million registered motorcycles in Africa in 2022 up from under five million in 2010 with an estimated 80% of motorcycles being used as passenger taxis or for delivery services. There are broad variations between countries with Zambia being estimated to have the lowest density of motorcycles at 2.5 per 1,000 population while Tanzania and Ghana have more than 25 per 1,000 population. The different countries have specific regulations for importation and operation of the motorcycles and as an example, Tanzania which has relatively the highest number of motorcycles, has the Tanzania Bureau of Standards (TBS) requirements of the TZS 1231 (Part 1) (1st Ed) - Motorcycles for general use – Part 1: Specification for two-wheeled motorcycles and TZS 1231 (Part 2) (1st Ed) - Motorcycles for general use – Part 2: Specification for three-wheeled motorcycles for importation and the Tanzania Road Traffic Act for operation. Despite this, while in other parts of the world road traffic death rates have been falling, in Africa they are rising driven partly by motorcycle-related deaths with Bishop

³ Full text available at: <https://unece.org/transportvehicle-regulations/text-1997-agreement>

⁴ Full text available at: <https://unece.org/text-1998-agreement>

and Courtright (2022) reporting more than 20% of road accidents fatalities in 2016 being from motorcycle riders.

Many of the vehicles on the roads of the three African countries are imported either new or used. Table 1 gives an overview of the number of vehicles imported into the countries.

Table 1: Number of imported vehicles registered during 2022 in three African countries

Vehicle Category	Ghana	Tanzania	Zambia
L₃ (A two-wheeled vehicle with an engine cylinder capacity in the case of a thermic engine exceeding 50 cM ₃ or whatever the means of propulsion a maximum design speed exceeding 50 km/h. e.g., motorcycles)	78,117	266,979	18, 875
M₁ (Passenger cars, vehicles used for carriage of passengers, comprising not more than eight seats in addition to the driver's (<= 9 seats), and mass <3.5 tonnes)	60,743	55,084	52,083
M₂ (Vehicles used for the carriage of passengers, comprising more than eight seats in addition to the driver's seat (>9 seats), and having a maximum mass < 5 tonnes.)	27,967	N/A†	2,548
M₃ (Vehicles used for the carriage of passengers, comprising more than eight seats in addition to the driver's seat (>9 seats), and having a maximum mass >5 tonnes)	7,739	3,528	8,917
N (Vehicles used for the carriage of goods)	6,148	19,360	N/A‡

†The statistics for M₂ and M₃ are combined for Tanzania. See M₃ for the total number.

‡Statistics were not available at the time of this study.

Figure 1 below shows the global flow of used vehicles from the four major exporting regions – the European Union, the US, Japan, and the Republic of Korea. Many African nations import used vehicles from these regions, but Egypt, South Africa, Algeria, Morocco, and Sudan have completely banned the import of used vehicles (Ayeter et al., 2021) to improve road safety as well as mitigate environmental impact. While bans on used imported vehicles can positively affect road safety and the environment, it key that when vehicles are produced locally, harmonized technical regulations are in place to monitor the quality of these vehicles.

It is evident that the absence of harmonized technical regulations and standards in Ghana, Tanzania, and Zambia has facilitated the influx of vehicles that may not meet minimum safety and environmental standards. This situation contributes to the higher risk of road traffic injuries and fatalities in these countries, as demonstrated by the great disparities in vehicle safety standards between different global regions.

Therefore, a review is important to understand the existing regulations and the lack thereof, thereby identifying areas where standards can be improved or implemented

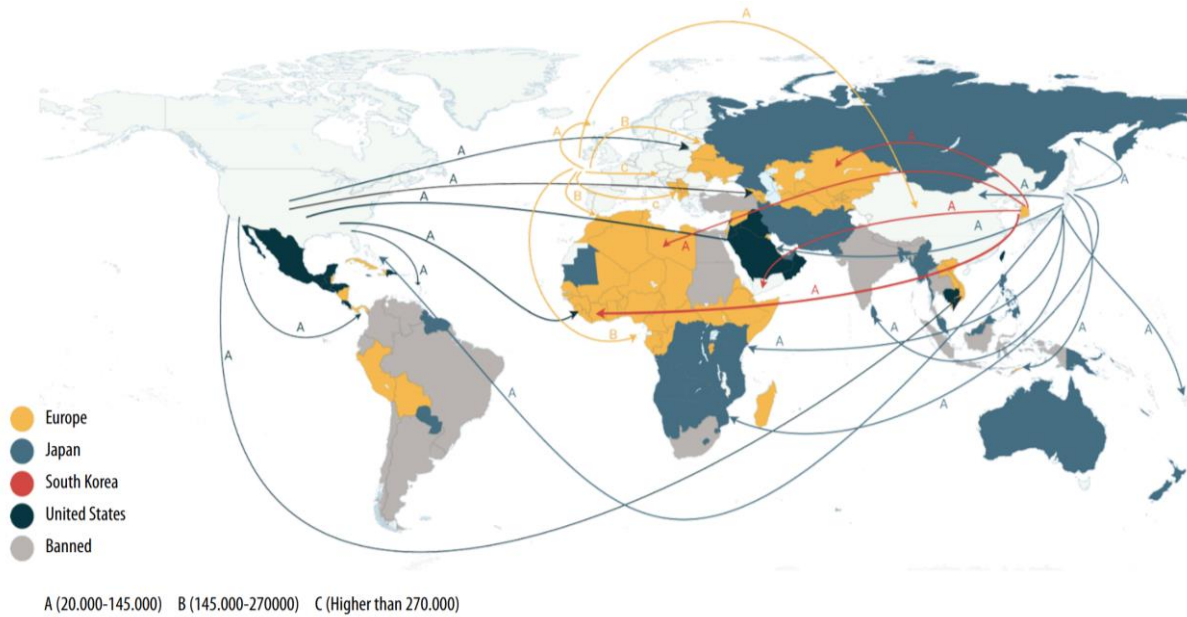


Figure 1: Quantity and flow of Light Duty Vehicles from EU, USA, Japan and Republic of Korea. Source: United Nations Environment Programme (2020)

1.1 Aim

The aim of this report is to conduct a comprehensive analysis of the current vehicle safety regulations and standards in Ghana, Tanzania, and Zambia, and then benchmark these against global standards. The objective is to identify gaps and propose updates to align the regulations in these three African countries with international best practices, ultimately enhancing road safety.

1.2 Method

The report was based on an investigation of vehicle standards and safety ratings for new and used vehicles (including in-use standards, where applicable). The project reviewed the existing standards and regulations concerning vehicle import and registration in three African countries – Ghana, Tanzania, and Zambia – related to passenger cars, trucks, and motorized two-wheelers. Ghana, Tanzania, and Zambia have already adopted national standards on vehicle safety within the local standardization bodies. The Governmental regulations on vehicle safety have however, not yet been fully harmonized with global regulations in Ghana, Tanzania, and Zambia.

1.2.1 Reviewed components

The specific elements of the vehicle safety regulations and standards reviewed in the report are detailed. This includes:

1. Regulations: refers to the legal requirements set by the governments of Ghana, Tanzania, and Zambia regarding vehicle safety, importation, and registration.
2. Standards: This encompasses the technical specifications and criteria established by local standardization bodies in the three countries, such as GSA, TBS, and ZCSA/ZABS, which vehicles must meet.
3. Consumer Ratings: This involves assessing the safety and performance ratings given to vehicles by consumer organizations or other relevant bodies.
4. Scrappage Policies: Examination of policies related to the disposal and recycling of old or unsafe vehicles

1.2.2 Research methodology

Records of the regulations and standards were scattered in terms of availability. As a result several sources were used to access them. The following methods were used to gather the necessary documents for this report:

1. Internet Research: Searching online databases, official government websites, and digital archives for relevant regulations, standards, and other related documents. The international standards and regulations such as from the UN were available online. However, only some of the documents from the three African countries were available online.
2. Library Archives: Not all documents were digitalized in the three countries. Thus we consulting physical records and published materials in libraries that hold pertinent information on vehicle safety regulations and standards.
3. Local authorities: In some cases, documents were not available even in libraries. Local authorities and experts were consulted and interviewed for documents that were not accessible through libraries or internet sources.

1.2.3 Engaged authorities

In Ghana, the Ghana Standards Authority (GSA) is mandated to develop, publish and promote standards in the country. It aims to contribute towards the growth of industry, protect consumers and facilitate trade through standardisation, metrology and conformity assessment. The current standard DGS 4510: 2022- Road vehicles- Requirements for imported used motor vehicles specifies the requirements and standards for the importation of used motor vehicles into the country including the required safety characteristics and inspection criteria. The following are the main stakeholders for Ghana:

1. Driver and Vehicle Licensing Authority (DVLA)
2. Ghana Standards Authority (GSA)

In Tanzania, the Tanzania Bureau of Standards (TBS) is a government entity in custody of *all* mandatory and voluntary national standards applicable in the country. In this case for now, Tanzania do not have industry developed standards rather the industry would need to conform to these national standards although the process of making national standards is participatory. Further to this Tanzania have other government regulations from Ministries. The following are the main stakeholders for Tanzania:

1. Tanzanian Bureau of Standards (TBS)
2. Tanzania Revenue Authority (TRA)
3. Land Transport Regulatory Authority (LTRA)

In Zambia, The Zambia Compulsory Standards Agency (ZCSA)⁵ and the Zambia Bureau of Standards (ZABS) play pivotal roles in vehicle regulations and standards. The following are the main stakeholders for Zambia:

1. Road Transport and Safety Agency (RTSA)
2. Zambia Bureau of Standards (ZABS)
3. Zambia Police (ZP)
4. Zambia Compulsory Standards Agency (ZCSA)

⁵ Read about ZCSA: <https://www.zcsa.org.zm/index.php/roadworthiness-inspection-of-imported-used-vehicles/>

1.2.4 Report structure

The report is structured as follows:

Section 2 outlines global best practices for vehicle regulations. **Section 3** presents an inventory of current standards and regulations for new vehicles, while **Section 4** does the same for used vehicles. **Section 5** shifts focus to vehicle registration. In **Section 6**, the report delves into the vehicle scrappage regulation and policies. **Section 7** offers an overview of global best practices and the awareness of the New Car Assessment Programme (NCAP). The final section, **Section 8**, conducts a gap analysis and sets priorities for enhancing vehicle safety.

2 Global best practices for safe vehicles

When global agreements and standards are not adopted and practised by all nations, it can lead to disparities in safety standards between countries. This problem was highlighted even in Europe following Brexit, where the Government of the UK opened discussions on free trade agreements with other countries, including the US. One of the product areas covered was motor vehicles and their impact on traffic safety (Parliamentary Advisory Council for Transport Safety, 2020).

Within the African context, without stringent regulations and requirements, such as the UN regulations, this would lead to sub-par or sub-standard vehicles being produced in Africa or imported to Africa, as highlighted by Global NCAP (Global NCAP, 2020).

2.1 United Nations (New and Used Vehicles)

The Working Party 29 (WP.29) of the Inland Transport Committee under the United Nations Economic Commission for Europe is responsible for managing the three key UN agreements, 1958, 1997, and 1998 (United Nations Economic Commission for Europe, n.d.). Table 2 below shows the status of the 1958 and 1998 agreements in Sweden, the USA (a major source of import to Ghana), and the three African nations, and their relevance to key safety features. The USA has not adopted or ratified the UN Agreements but instead has a different standard, detailed in Section 2.2.

Table 2: UN Agreements and their application to key vehicle safety features in various countries.

Regulations	UN [†]	USA [‡]
Brake	UN 1958 UN 1998	CFR Title 49, Part 571, FMVSS
Lights	UN 1958 UN 1998	CFR Title 49, Part 571, FMVSS
Occupant Protection	UN 1958 UN 1998	CFR Title 49, Part 571, FMVSS
Pedestrian Protection	UN 1958 UN 1998	N/A [#]
Tyres	UN 1958 UN 1998	CFR Title 49, Part 571, FMVSS
Door latches	UN 1958	CFR Title 49, Part 571, FMVSS
Motorcycle helmets	UN 1958	CFR Title 49, Part 571, FMVSS
Truck rear underride protection (RUP)	UNECE R58	FMCSA 393.86

[†]UN 1958 / UN 1998, see breakdown in section 2.1.1 and 2.1.2

[‡]USA, see breakdown in section 2.2

[#]The USA does not have a regulation for pedestrian protection at the time of this study.

2.1.1 UN 1958 Agreement

The 1958 Agreement is an international accord open to all United Nations member nations. Its primary objective is to establish consistent and standardized United Nations Regulations that cover the safety, environmental impact, energy efficiency, and anti-theft measures related to vehicles and their components. This agreement offers unified technical regulations for certifying new wheeled vehicles, their accessories, and parts. It also includes provisions for the mutual recognition of

approvals granted under United Nations Regulations attached to this Agreement (United Nations Economic Commission for Europe, 2022b).

Countries that are parties to the 1958 Agreement adopt United Nations Regulations as part of the Agreement. These regulations govern the approval process for road vehicles, equipment, and parts intended for sale in these countries, eliminating the need for additional national certifications. This follows the principle of "approved once, accepted by all Contracting Parties." It addresses safety standards for vehicles, their impact on the environment in terms of air and noise pollution, energy efficiency, and security (United Nations Economic Commission for Europe, 2022b).

2.1.2 UN 1998 Agreement

The 1998 Agreement sets forth a mechanism that allows nations from across the globe to collaboratively create UN GTRs (global technical regulations) pertaining to the safety, environmental protection systems, energy sources, and anti-theft measures for vehicles, their equipment, and components. These regulations encompass a wide range of aspects, including but not limited to vehicle design, exhaust systems, tires, engines, sound-dampening mechanisms, anti-theft security systems, warning devices, and child restraint systems (United Nations Economic Commission for Europe, 2022b).

The primary objective of the UN 1998 Agreement is to consistently enhance worldwide safety standards, reduce environmental pollution, and promote greater energy efficiency (United Nations Economic Commission for Europe, 2022b).

Table 3 shows the list some of countries of interest that have adopted the 1958 and 1998 Agreements.

Table 3: List of some contracting parties to the UN 1958 and UN 1998 Agreements as of 2022. African countries are shaded in grey

Continent		Contracting Party	1958 [†]	1998 [†]	
			Adhesion / Accession	Adhesion / Accession	Entry into force
AfroSAFE European nations		Denmark	1976	-	-
		European Union	1998	1999	2000
		Netherlands	1960	2002	2002
		Norway	1975	2004	2004
		Sweden	1959	2002	2003
Africa	AfroSAFE nations	Ghana	-	-	-
		Tanzania	-	-	-
		Zambia	-	-	-
	Non-AfroSAFE nations	Egypt	2013	-	-
		Nigeria	2018	2018	2018
		South Africa	2001	-	-
		Tunisia	2008	2007	2008
Rest of the world		Japan	1998	1999	2000
		United Kingdom	1963	2000	2000
		USA	-	1998	2000

[†] “-” indicates that the country is not a contracting party to the respective UN agreement.

Table 4 highlights the vehicle safety-related regulations in both these agreements, which are relevant to the African nations importing from these regions.

Table 4: Safety-related regulations for Passenger cars, Motorized two-wheelers and Commercial Vehicles

UN Agreement	No.	Name	Vehicle Components and Functions					Vehicle Category [†]			
			Brakes	Lights	Occupant Protection	Pedestrian Protection	Tyres	Passenger cars (M ₁)	Motorized two-wheelers	Trucks (N ₂ , N ₃)	Bus (M ₂ , M ₃)
UN 1958	UN R12	Protection from Steering Wheel			✓			✓			
	UN R16	Safety-belts			✓			✓		✓	✓
	UN R17	Seat anchorage & head restraints			✓			✓		✓	✓
	UN R21	Interior fittings			✓			✓			
	UN R22	Motorcycle helmets			✓				✓		
	UN R44	<i>Replaced by UN R129</i>									
	UN R75	Motorcycle tyres							✓		
	UN R78	Brakes on Motorcycles							✓		
	UN R94	Frontal collision protection			✓			✓			
	UN R95	Lateral collision protection			✓			✓			
	UN R114	Airbag module for a replacement airbag system			✓			✓			
	UN R127	Pedestrian safety				✓		✓			
UN R129	Enhanced child restraint system			✓			✓				
UN 1998	GTR 3	Motorcycle brakes							✓		
	GTR 7	Head restraints			✓			✓			
	GTR 9	Pedestrian safety				✓		✓			
	GTR 14	Pole side impact			✓			✓			

[†]Vehicle classification according to UN ECE Consolidated Resolution on the Construction of Vehicles (R.E.3) Revision 7 (United Nations Economic Commission for Europe, 2023).

2.1.3 Global Road Safety the OICA Manifesto

The International Organisation of Motor Vehicle Manufacturers (OICA)⁶ was founded in 1919 and currently gathers 36 trade associations around the world, including almost all major automobile manufacturing countries in Europe, America, Africa, and Asia. OICA is the only non-governmental

⁶ See www.oica.net for more information about OICA.

car and truck manufacturers' organization accredited to the United Nations and represents the technical interests of the global vehicle industry in international institutions and organizations.

The global motor vehicle industry, as represented through OICA, is strongly dedicated to the improvement of road safety worldwide. The OICA manifesto (The International Organisation of Motor Vehicle Manufacturers, 2022) outline recommendations for global road safety considerations.

OICA recommends that the experience gained in developed countries, where such an integrated approach has resulted in unprecedented levels of road safety despite a high concentration of traffic, be put to good use in emerging countries.

Road safety is a complex phenomenon, involving a combination of various factors and stakeholders, interacting with each other. These factors and stakeholders include road user training, education and behaviour, road and repair infrastructure, road traffic rules and their enforcement, efficient medical care system, progress in the analysis of accidents' causation and their consequences (The International Organisation of Motor Vehicle Manufacturers, 2022).

OICA supports the recent UN Resolutions 70/260, 72/271 and 74/299 on "Improving global road safety" as they address most of the parameters that need to be considered. These Resolutions clearly call for governmental action in a holistic, integrated approach, looking at all parameters and putting in place legislation as needed.

Based on this approach authorities can help the vehicle industry by ensuring all manufacturers are placed on an equal footing, through imposing the legal requirements appropriate for their local conditions, and OICA expresses commitment to cooperate in such process.

OICA aims to set up a constructive dialogue with various authorities around the world in order to put in place the necessary vehicle legal requirements where they do not exist or where they are inadequate. In conclusion, OICA strongly believes that all actors have an important role to play and have to take their own responsibilities in order to achieve a better road safety situation.

2.1.4 Examples from contracting parties of the UN Agreement

Controlling the quality of vehicles being exported at the exporting country can be effective in reducing vehicles that do not fulfil a minimum roadworthiness standard from ending up on African roads. In the ideal scenario, only vehicles that fulfil the roadworthiness requirement of the exporting country should be exported. This would support the countries with leapfrogging in technology penetration.

Case 1: Requirements to export a vehicle from the EU to a non-EU nation

The European Union is currently the largest exporter of used vehicles, with over 870,000 used vehicles exported annually for a value of approximately €3.85 billion, with Africa being one of the biggest importing markets (European Commission, 2023a). More than 60% of the exported vehicles to Africa do not meet Euro IV emission standards, are older than 15 years and do not have a valid roadworthiness certificate (European Commission, 2023a, 2023b). The largest importers of used vehicles from The Netherlands, as an example of an EU country, are Libya, Nigeria, and Ghana (Ministry of Infrastructure and Water Management, 2020).

The "Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of-life vehicles" currently regulates the end-of-life vehicles in the EU and export of used vehicles from the EU (Directive 2000/53/EC), where an end-of-life vehicle is defined as waste (as defined in Directive 2008/98/EC). However, in a recent proposal by the European Commission (2023b) titled "Proposal for a Regulation of The European Parliament and of The Council on circularity requirements for vehicle design and on management of end-of-life vehicles, amending Regulations (EU) 2018/858 and 2019/1020 and repealing Directives 2000/53/EC and 2005/64/EC", calls for a stricter overhaul of current export regulations to facilitate a circular economy, traceability of vehicles,

and ensuring only vehicles which are roadworthy in their source country can be exported (European Commission, 2023b). Requirements for exporting used vehicles are laid down in Chapter V of the proposal: the vehicle can be exported only if they are not end-of-life and is considered roadworthy in the country it was registered in as stipulated in Directive 2014/45/EU. Before export, customs authorities in the EU must verify that the Vehicle Identification Number (VIN) registered on the MOVE-HUB⁷ electronic database is roadworthy at the time of export. This includes periodic roadworthiness inspection performed as stipulated in Article 5(1), and a roadworthiness certificate fulfilling the requirements stipulated in Article 8 of Directive 2014/45/EU.

The proposal by the European Commission (2023b) calls for, among other things, a free access digital Vehicle Circularity Passport which contains necessary data treating end-of-life vehicles and is regularly updated by vehicle manufacturers. Annex VII, Part E of the proposal describes the treatment of various parts and components including specific parts which must not be reused – the parts concerning vehicle safety include all airbags including cushions, pyrotechnic actuators, electronic control units, sensors, automatic or non-automatic seat belt assemblies, including webbing, buckles, retractors, pyrotechnic actuators, and seats in cases where they incorporate safety belt anchorages and/or airbags (European Commission, 2023b). The proposal further strengthens Directive 2000/53/EC and Directive 2008/98/EC to extend vehicle manufacturer responsibility by financing a part of the costs associated with the collection and treatment of end-of-life vehicles, as detailed in Article 20 of the proposal. This includes vehicles exported outside the EU to ensure circularity. Vehicle manufacturers are expected to finance educational campaigns aimed at improving the collection of end-of-life vehicles.

The eventual passage into regulation and adoption of the proposal can have a resounding impact on road safety in Africa by limiting and stopping the export of vehicles that do not fulfil environmental standards or roadworthiness requirements of the exporting nation (European Commission, 2023b).

Case 2: Requirements to import used vehicle from Non-EU into EU (Sweden)

Sweden has been a vehicle manufacturing country for more than a century. The most well-known brands in history are Saab Cars, Scania Trucks, Volvo Cars and Volvo Trucks. As a member of the UN, Sweden became a contracting party of the UN 1958 agreement as early as 1959, which makes sense as it facilitates trade of vehicles, one of the major export products for the country.

Imported vehicles from non-contracting countries, such as North America to Sweden, have been subjected to modifications to be accepted for registration. These modifications have historically been performed in Sweden by the importer, if not by the manufacturer. One example of this is the design of headlamps, see Figure 2 and Figure 3. During the years between 1940 and 1983, US regulations required sealed beam headlamps. This design was not approved in Sweden and many other European countries. Prior to sales in Sweden, the imported cars were upgraded to meet the local regulations.

⁷ The MOVE-HUB is an electronic system developed by the Commission to be used for exchanging Vehicle Identification Number and information on the vehicle registration and roadworthiness status between national vehicle registers and electronic systems on roadworthiness of the Member States, as well as, to interconnect to the EU Single Window Environment for Customs, where necessary for controls and requirements. More information can be found in Article 45 of the European Commission's proposal (2023b)



Figure 2: Headlamp on a Citroën DS with U.S. “Sealed beam” configuration



Figure 3: Headlamp on a Citroën DS with European “Sealed beam” configuration

2.2 United States of America

The US is one of the major exporting countries to Africa (United Nations Economic Commission for Europe, 2022b). Even though the country is a member of the UN, it is not a contracting party of the UN 1958 agreement. This agreement was initiated by the Economic Commission of Europe and the USA and has a fundamentally different approach to the validation process. Whereas the UN 1958 Agreement stipulates an independent body, the US practices self-certification. Self-certification means that the producer can certify the compliance themselves without an external body involved.

Since most of the imported vehicles to Ghana, are from US, it is important to understand which vehicle regulations are present in US and their differences to the UNECE regulations. An inventory of the safety standards in the US can be found in Table 5 (Table 4 covers the equivalent UN regulations). The American Safety Standards in Table 5 are defined in Part 571 of the 49th Code of the Federal Regulations (49 CFR 571, 2011).

Table 5: Safety related standards for Passenger cars, Motorized two-wheelers and Commercial Vehicles.

No.	Name	Vehicle Components and Functions					Vehicle Category		
		Brakes	Lights	Occupant Protection	Pedestrian Protection	Tyres	Passenger cars	Motorized two-wheelers	Commercial vehicles
FMVSS 105	Hydraulic & electric brake systems	✓					✓		✓
FMVSS 106	Brake hoses	✓					✓		✓
FMVSS 108	Lamps, reflective device & associated Equipment		✓				✓		✓
FMVSS 109	New pneumatic tires for passenger Cars					✓	✓		
FMVSS 110	Tire selection and rims for passenger Cars					✓	✓		
FMVSS 116	Motor vehicle brake fluids	✓					✓		
FMVSS 117	Re-treaded pneumatic tires					✓	✓		

No.	Name	Vehicle Components and Functions					Vehicle Category		
		Brakes	Lights	Occupant Protection	Pedestrian Protection	Tyres	Passenger cars	Motorized two-wheelers	Commercial vehicles
FMVSS 119	New pneumatic tires for vehicles other than passenger cars					✓			
FMVSS 120	Tire selection & rims for motor vehicles other than passenger cars					✓			
FMVSS 121	Air brake systems	✓							✓
FMVSS 122	Motorcycle brake systems	✓						✓	
FMVSS 129	New non-pneumatic tires for passenger cars					✓	✓		
FMVSS 131	School bus pedestrian safety devices				✓				✓
FMVSS 135	Light vehicle brake systems	✓							
FMVSS 138	Tire-pressure monitoring systems					✓	✓		✓
FMVSS 139	New pneumatic radial tires for light vehicles					✓			
FMVSS 201	Occupant protection			✓			✓		
FMVSS 202	Head restraints			✓			✓		
FMVSS 203	Driver Protection against the Steering Control			✓			✓		
FMVSS 204	Steering control rearward displacement			✓			✓		
FMVSS 207	Seating systems			✓			✓		✓
FMVSS 208	Occupant crash protection			✓			✓		✓
FMVSS 209	Seat belt assemblies			✓			✓		✓
FMVSS 210	Seat belt assembly anchorages			✓			✓		✓
FMVSS 213	Child restraint systems			✓			✓		
FMVSS 214	Side impact protection			✓			✓		
FMVSS 216	Roof crush resistance			✓			✓		
FMVSS 218	Motorcycle helmets			✓				✓	
FMVSS 220	Roll-Over Protection for School Buses			✓					✓
FMVSS 222	School Bus Passenger Seating & Crash Protection			✓					✓
FMVSS 223	Rear impact guards								✓

No.	Name	Vehicle Components and Functions					Vehicle Category		
		Brakes	Lights	Occupant Protection	Pedestrian Protection	Tyres	Passenger cars	Motorized two-wheelers	Commercial vehicles
FMVSS 224	Rear impact protection			✓			✓		✓
FMVSS 225	Child restraint anchorage systems			✓			✓		
FMVSS 226	Ejection mitigation			✓			✓		
FMVSS 302	Flammability of Interior Materials			✓			✓		✓
FMVSS 305	Electric-powered Vehicles, Electrolyte Spillage & Electrical Shock Protection			✓			✓		

2.2.1 Examples from the US

Case 1: Requirements to export a vehicle from the US

It is the responsibility of the reviewing inspector in the US Customs to ensure that an original certificate of title is presented according to 19th code of federation regulation (CFR) 192.2(b) (U.S. Customs and Border Protection, 2022). The certificate of title is a core requirement in the customs export process, regardless of the vehicle's economic value, physical condition, or operating order.

Procedurally, all exporters or their agents who present a document to customs are to begin at 19 CFR 192.2(b)(1) and then progress through each subsection until the exporter arrives at the section and subsection(s) that apply to the vehicle that has been presented to customs for export. This procedure ensures that no requirement is misinterpreted, misapplied, or circumvented by either the exporter or the reviewing customs officer.

A person exporting a used self-propelled vehicle shall present to customs, at the port of exportation, both the vehicle and the required documentation describing the vehicle including the Vehicle Identification Number (VIN) or, if the vehicle does not have a VIN, the Product Identification Number (PIN). Exportation of a vehicle will be permitted only upon compliance with 19 CFR 192.2 requirements, unless the vehicle was entered into the United States under an in-bond procedure, a carnet, a Temporary Importation Bond, or under a personal exemption for non-residents who entered the vehicle for one year.

US Customs and Border Protection (2022) lists the required documentation as follows:

For US-titled vehicles

1. *Vehicles issued an original certificate of title.* For used, self-propelled vehicles issued by any jurisdiction in the United States, a Certificate of Title or a Salvage Title that remains in force, the owner must provide to Customs the original Certificate of Title or a Certified Copy of the Certificate of Title and two complete copies of the original Certificate of Title or the Certified Copy of the original.
2. *Where title evidences third-party ownership/claims.* If the used, self-propelled vehicle is leased or a recorded lien exists in the US, in addition to complying with paragraph (b)(1)(i) of the 19 CFR 192.2, the provisional owner must provide to customs a separate writing

from the third-party-in interest which expressly provides that the subject vehicle may be exported. This writing must be on the third-party's letterhead paper and contain a complete description of the vehicle including the Vehicle Identification Number (VIN), the name of the owner, and the telephone numbers at which that owner may be contacted and must bear an original signature of the third-party and state the date it was signed.

2.3 African Nations

Nigeria was the first country outside the UN Economic Commission for Europe's region to accede to all seven UN agreements on road safety⁸ (listed below), in line with the prioritized targets of the UNECE's strategy until 2030 (United Nations Economic Commission for Europe, 2022a).

1. 1968 Convention on Road Traffic;
2. 1968 Convention on Road Signs and Signals;
3. 1958 Agreement concerning the Adoption of Harmonized Technical United Nations Regulations for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these United Nations Regulations;
4. 1997 Agreement concerning the Adoption of Uniform Conditions for Periodical Technical Inspections of Wheeled Vehicles;
5. 1998 Agreement concerning the Establishing of Global Technical Regulations for Wheeled Vehicles, Equipment and Parts;
6. 1957 Agreement concerning the International Carriage of Dangerous Goods by Road (ADR);
7. 1970 European Agreement concerning the Work of Crews of Vehicles Engage in International Road Transport (AETR).

Nigeria also implemented laws mandating Anti-lock Braking Systems and other key safety technologies (United Nations Economic Commission for Europe, 2020). Nigeria has also recently approved a plan aimed at making local production more attractive to vehicle manufacturers through both monetary and non-monetary incentives through the recently approved National Automotive Industry Development Plan (Nigerian Automotive Design and Development Council, 2023). This plan has an ambitious target of achieving 40% locally produced vehicles in the national fleet. The plan lays out the enforcement of several restrictions for importing used vehicles into Nigeria such as a ban on vehicles which have been involved in a crash before export. These practices are reflected by Nigeria being one of the best-performing nations in Africa for road safety (United Nations Economic Commission for Europe, 2015).

⁸ See the following UNECE document for a summary of all UN Agreements:
https://unece.org/DAM/road_Safety/Publications/United_Nations_Road_Safety_Conventions_01.pdf

3 Status and inventory of regulations for new vehicle among African partners

While majority of the vehicles being imported into the African countries are used vehicles, there is still a share of new vehicles imported. As these vehicles are imported from various countries, the safety standards can vary based on the laws in the exporting country. If and where local assembly or production of vehicles happen in these countries, regulations play a vital role in controlling the quality of vehicles being produced to comply with international safety requirements. Introduction of new vehicles are an essential element in modernizing the nations' fleets, thus, having the highest safety standards is key.

3.1 Ghana

3.1.1 Background

The Customs Act 215 (Act 891) provides the legal framework for the importation of vehicles into Ghana. Sections 55 to 61 of the Act constitute the principal legislation governing the importation of vehicles (Ghana Standards Authority, 2019). The age of a vehicle imported under the law is calculated with effect from the year in which the vehicle was first manufactured.

3.1.2 Regulatory requirements

The Ghana Standards Authority requires that all importers and assemblers of new vehicles register with them and ensure that vehicle models imported or assembled are homologated by them in line with the relevant Ghana standards for new vehicles of categories M₁ (passenger cars and SUVs), M₂ (minibuses), and N₁ (pickups and cargo vans). Ghana has adopted the Euro II standard (which is about lowering carbon content in fuel) (whfor new vehicle regulation (JCT, 2020; Ayetor et al., 2021).

Legitimate test report from Original Equipment Manufacturers is required for all new vehicles to facilitate homologation certification from Ghana Standards Authority. Vehicle marking system is also required to identify vehicles throughout their life span.

3.2 Tanzania

3.2.1 Background

The Tanzania Bureau of Standards (TBS) is the national standards body established by Parliamentary Act No. 3 of 1975 as the National Standards Institute which became operational on 16th April 1976 and was subsequently renamed Tanzania Bureau of Standards under Act No. 1 of 1977 which on 20th March 2009 was repealed and replaced by the Standards Act No. 2 of 2009. Currently TBS has passed standards for new motor vehicles (cars and trucks) and therefore new motor vehicles are not inspected by TBS and would not require a TBS permit to be registered in the country.

3.2.2 Regulatory requirements

In Tanzania, the organisation responsible for setting national standards, called the Tanzania Bureau of Standards (TBS), does not have local standards and regulations for imported new vehicles. Instead, they follow standards developed by the African Organisation for Standardisation (ARSO). The African Regulation Standard 1595 (ARS 1595:2020, Vehicle homologation) has been adopted in Tanzania for checking and approving homologation requirements for motor vehicles categories that have not been previously registered or licensed in any country.

In normal practice, when a new vehicle arrives in Tanzania, it comes with a Type Approval Certificate, and TBS checks the certificate to allow the vehicle to be imported. After a year of operation, these vehicles are subject to periodic inspection (road worthiness for the used vehicles).

In summary, currently, Tanzania has not passed own standards for regulating new vehicles. Instead, it relies on the regulations and standards from the country where the vehicle was made, which may include standards like the UN 1958 and UN 1998 agreements.

3.3 Zambia

3.3.1 Background

As Zambia is not home to any domestic car manufacturing plants, new vehicles are imported from abroad. This situation underscores the importance of Zambia's stringent vehicle import regulations. The Zambia Compulsory Standards Agency (ZCSA) and the Zambia Bureau of Standards (ZABS) play pivotal roles in this context. They are tasked with regulating the importation of new motor vehicles, from countries like Japan, the UK, Singapore, and Dubai. Through rigorous inspections, ZCSA and ZABS ensure that these imported vehicles adhere to strict roadworthiness and environmental standards. This diligent approach is key to preventing the influx of low-quality vehicles into Zambia.

In Zambia, there are certain regulations that need to be followed when registering a new vehicle or importing it. These regulations vary depending on the purpose of the application. The Road Traffic Act No.11 of 2002 provides for two types of registration processes; Temporary for vehicles imported in Zambia; and Permanent Registration for all vehicles.

3.3.2 Regulatory requirements

The dynamics of vehicle importation and regulation in Zambia have long been a subject of interest and significance. It is essential to highlight that Zambia's market for vehicles is exclusively import-dependent, lacking any indigenous vehicle manufacturing plants. This importation ecosystem includes brand new vehicles, with the caveat that only right-hand drive vehicles are permitted, with exceptions made for specialized vehicles like ambulances and fire engines.

In Zambia, the Zambia Bureau of Standards is mandated to value new vehicles based on the World Trade Organization Agreement valuation method and duties and taxes are applied on Ad valorem basis (MOTL, 2019). In addition, motor vehicle registration fee is also charged. New Vehicle attract the following taxes, import duty, Import VAT and Duty.

There is no difference between evaluation of new vehicles, both undergo the same examination. However, the regulatory approach towards new and used vehicles differs primarily in focus areas, given the absence of specific national standards for new vehicles. New vehicles, although not governed by unique Zambian standards or regulations, are still subjected to thorough roadworthiness inspections and fitness tests. These evaluations ensure that the new vehicles are safe for operation and meet general road safety requirements, focusing on their mechanical integrity, safety features, and emissions.

4 Status and inventory of regulations for used vehicle among African partners

A substantial share of new vehicle registrations in the African countries are used, imported vehicles varying from 0% in South Africa to as high as 97% in Kenya (United Nations Environment Programme, 2020). Without stringent control on the quality and roadworthiness of the imported vehicles, these countries are at a high risk of crashed, salvaged vehicles or vehicles with poor environmental impact being imported. As much as 56% of the vehicles exported to Africa has one or more deficiencies and would fail a periodic roadworthiness technical inspection (Ministry of Infrastructure and Water Management, 2020). These deficiencies include malfunctioning or missing safety features such as airbags, seatbelts, or brake systems. The investigation by the Dutch Ministry of Infrastructure and Water Management also found these vehicles have a high risk of tampered odometers to make the cars more attractive and sellable. The following section covers the current regulations in place in the three African countries for used vehicles.

4.1 Ghana

4.1.1 Background

Ghana notified the World Trade Organisation (WTO) of its new requirements for importing used vehicles in April 2022. The new Ghana Standard for used vehicles, GS 4510:2022 (Ghana Standards Authority, 2019) specifies the requirements, which include safety characteristics and inspection criteria and emission requirements for imported used motor vehicles of categories M₁, M₂, M₃, N₁, N₂, N₃ and O except for category L. The law stipulates that salvaged vehicle with major damages, originally manufactured right-hand drive vehicles, over-aged vehicles (i.e., over ten years from the date of manufacture), vehicles to be assembled from parts imported as spare parts, and vehicles without speedometer readings in kilometres per hour shall not be allowed into the country. On the right-hand drive, the law states that “No person shall import a right-hand steering motor vehicle into the country unless otherwise authorised by the Minister of Transport”. The law is not explicit on the passive (e.g., seatbelt) or active safety (e.g., advanced driving assistance systems) equipment in the vehicle.

4.1.2 Regulatory requirements

The Ghana Standards Authority is the body responsible for setting standards, including importation of new and used vehicles. Section 55 to 61 of the Customs Act 2015 (ACT 891) is the principal legislation governing the importation of cars to Ghana (Ghana Standards Authority, 2019). The import of used vehicles far exceeds that of new vehicles. Data from the Customs Division of the Ghana Revenue Authority reveal that of the 336,947 cars imported to Ghana between 2015 and 2017, 65.6% were used cars. Most of the used vehicles imported into Ghana were salvaged and accident vehicles with less efficient engines.

Since 1 January 2023, all used vehicles imported into Ghana required valid Certificate of Conformance (CoC) from approved body third-party inspection bodies or through trained and licensed used vehicle dealerships in Ghana. The CoC must demonstrate conformance of the used vehicle to requirements of the Ghana Standard for used vehicles GS 4510:2022 Road Vehicles-Requirements for imported used motor vehicles in line with the Customs (Amendment) Act 2020, Section 61 of Act 891 amended and related legislation (Ghana Standards Authority, 2019). The following are tested during the import inspection:

1. Steering
2. Brakes
3. Seats
4. Vehicle entrance

5. Seatbelts
6. Lighting devices and reflectors
7. Audible warning devices (Horns and Sirens)
8. Speedometer and odometer
9. Engine
10. Heating, Ventilation and Air Conditioning (HVAC)
11. Suspension system
12. Tyres
13. Glazing materials
14. Rear-view mirrors
15. Electric vehicle and hybrid-electric vehicle

A detailed overview of the specific import requirements can be found in Appendix 1: Test requirements for used vehicles in Ghana.

The Customs Act 2015 (ACT 891) also specify that an inspector shall indicated in the inspection report if the features mentioned above are not functional or fitted, in which case the importer shall be required to tow the vehicle for the requisite repairs (Ghana Standards, Authority, 2019).

4.2 Tanzania

4.2.1 Background

TBS is the national standards body responsible for inspection standards as enacted by the Standards Act No. 2 of 2009. It ensures that all used motor vehicles imported into the country meet the requirements of the National Standard TZS 698 (2nd Ed) - Road vehicles – Code of practice for inspection and testing of used motor vehicles for roadworthiness; TZS 1231 (Part 1) (1st Ed) - Motorcycles for general use – Part 1: Specification for two-wheeled motorcycles; and TZS 1231 (Part 2) (1st Ed) - Motorcycles for general use – Part 2: Specification for three-wheeled motorcycles. TBS regulates inspection of used motor vehicles and currently exempts new vehicles.

4.2.2 Regulatory requirements

Imports Registration and Batch Certification Regulations of 2021 (The Standards Act, (CAP. 130), 2021) is the key regulation governing the import of used vehicles into Tanzania. Section 15 of the Imports Registration and Batch Certification Regulations of 2021 made under section 36(1) and (3)(f) of The Standards Act (2009) regarding motor vehicle certification prescribes as follows:

Certification of imported used motor vehicle shall be carried out after TBS has conducted the inspection as per recognised standard requirements discussed hereafter. The TBS Director General (DG), after being satisfied that the requirements have been complied with may approve and issue a certificate of roadworthiness in Form No. 9 set out in Second Schedule of these Regulations; or the requirements have not been complied with, the motor vehicle may be released with condition to rectify the observed defect within twenty-one days. The motor vehicle released after rectification of the observed defect, shall be re-tested for conformity to the respective standard and if complied shall be issued with certificate of roadworthiness.

Section 16 of the Imports Registration and Batch Certification Regulations of 2021 (The Standards Act, (CAP. 130), 2021) made under section 36(1) and (3)(f) of The Standards Act (2009) regarding pre-shipment verification approval prescribes as follows:

The Bureau shall have a system of conformity assessment before shipment to verify that, the commodities and products imported in Tanzania are in conformity with the applicable national standards or foreign or international standards recognised by the Bureau. The TBS DG shall prepare

and submit to the Board a list of commodities and products that may require mandatory pre-shipment verification of conformity to Standards for recommendations.

TBS import process for used motor vehicles conformity assessment is conducted under two inspection schemes:

1. Pre-shipment Verification of Conformity (PVoC) Scheme

An importer shall, before shipment of commodities and products, ensure the commodities and products are in the list approved by the Minister under regulation 16. Subject to sub-regulation (1), the importer shall inspect and test commodities and products from government accredited laboratory of the country of export recognised by the Bureau.

2. Destination Inspection (DI) Scheme

As of July 2023, PVoC process for imported used motor vehicles to Tanzania is conducted in the United Kingdom (UK), United Arab Emirates (UAE) and Japan, where clients are provided with Certificates of roadworthiness for units that have been found to comply with the requirements of TBS. All used motor vehicles shipped from the UK are inspected by the agent EAA Company Limited while those imported from the UAE and Japan are inspected by Quality Inspection Services Japan (QISJ). Vehicles imported from countries other than these will continue to be inspected in Tanzania under Destination Inspection (DI). DI Scheme is focused on the conformity assessment of imported goods (including used vehicles) after arrival in the country. This applies to all goods that are imported without a Certificate of Conformity (CoC). Currently DI for used motor vehicles is conducted at all official entry points. For both schemes (PVoC and DI), the used motor vehicles consignments undergo internal procedures for documentation and inspection before being released from the point of entries. Conformed used motor vehicles are granted with Certificates of Roadworthiness while failed used motor vehicles are either released conditionally or re-exported / destructed in line with the applicable laws, regulations and procedures. See Appendix 3: Import clearance process in Tanzania for a full overview of the import clearance process in Tanzania.

4.3 Zambia

4.3.1 Background

A majority of the Zambian population falls within the low-income bracket, and this economic context has led to a heavy reliance on the second-hand vehicle market for transportation needs. This trend is primarily driven by the limited purchasing power of many Zambians, making second-hand vehicles a more viable and cost-effective option (Jere et al., 2017).

This preference for second-hand vehicles is backed by research (Kamanga et al 2019) showing that individuals with constrained financial resources are more likely to choose used vehicles, primarily due to their affordability compared to new vehicles. The second-hand market thus plays a crucial role in meeting the transportation requirements of Zambian households, especially in an economic setting where purchasing a new vehicle is beyond the reach of many (Kamanga et al 2019). This scenario reflects the broader economic landscape in Zambia, where despite signs of growth, the prevailing economic conditions dictate consumer choices, particularly in essential areas like personal transportation.

The Zambian Standard ZS 560 (Zambia Compulsory Standards Agency, 2021), was introduced in December 2006 in response to public concerns about the quality of imported used vehicles. This standard includes specific criteria for vehicle roadworthiness, such as air conditioning gas regulations, to comply with Zambia's environmental laws. Complementing the ZS 560 standard, ZABS, in collaboration with stakeholders, developed the ZS 1051 standard for used tyres. This standard is instrumental in checking the quality of used tyres (Zambia Compulsory Standards Agency, 2021).

To facilitate these inspections, the ZCSA has appointed Auto Terminal Japan Ltd. (ATJ)⁹ as an accredited inspection company in Japan, United Arab Emirates, Singapore, United Kingdom, United States of America, and South Africa. This appointment aligns with Zambia's commitment to uphold its standards internationally. Additionally, the Japan Export Vehicle Inspection Center (JEVIC)¹⁰ has been engaged since 2009 to conduct vehicle inspections. The daily coordination between vehicle importers and the ZCSA, including managing JEVIC and ATJ's inspection services, demonstrates the robustness and effectiveness of Zambia's vehicle import regulatory framework. Collectively, these measures ensure that vehicles and tyres imported into Zambia conform to the high standards set by Zambian Standards ZS 560 and ZS1051.

For customs clearance, which is required for import/export purposes, the following supporting documents are needed: ZRA receipt, supplier invoice, release order, motor vehicle physical inspection (RTSA and Interpol), export certificate, evaluation paper, customs clearance certificate, and bill of lading. Only right-hand drive vehicles are allowed to be imported in Zambia. Exception is provided in case of ambulance and fire engine.

4.3.2 Regulatory requirements

The import requirements include invoice, road manifest or bill of lading, export bill of entry from country of export. In addition, Japan Export Vehicle Inspection Center (JEVIC) Inspection Certificate (Required by the Zambia Bureau of Standards) and Interpol Clearance are also required. In the case of used vehicles the duties and taxes are specific and based on the age and type of motor vehicle. The tax amounts are legislated and therefore known to the importer and customs broker. In addition, motor vehicle registration fee and a carbon emissions surtax are payable.

For used vehicles, the regulatory emphasis is more on their age and condition. This is because used vehicles, having been in operation before, pose different sets of concerns such as wear and tear, outdated safety features, and potentially higher emissions. Therefore, the inspections for used vehicles are tailored to assess their roadworthiness based on their age and overall condition, ensuring they still meet safety and environmental standards suitable for Zambia's roads. Used imported vehicles undergo roadworthiness Inspection (RWI) in compliance with Zambian Standards ZS560 by Zambia Compulsory Standards Agency (ZCSA).

Age Restriction

There is no age restriction on age of used vehicles imported in Zambia. In the current legal framework of Zambia, there currently exists no specific regulation or penalty that directly relates to the age of a vehicle, concerning either insurance premiums or taxation. Thus, factors such as the age of the vehicle do not play a direct role in determining insurance costs or taxation in Zambia. For instance, a 10-year-old vehicle would incur the same insurance premium or taxation as a newer model, resulting in an equitable distribution of financial responsibility among vehicle owners irrespective of their automobile's age.

Roadworthiness Inspection

The Zambia Bureau of Standards (ZABS) requires that a pre-shipment inspection for roadworthiness be carried out on all used vehicles imported into the Republic of Zambia. All used vehicles must meet the requirements of this important safety Pre-export inspection.

⁹ Read about Auto Terminal Japan: <https://www.zambiamonitor.com/govt-appoints-three-japanese-agents-to-handle-pre-inspection-of-fairly-used-vehicles/>

¹⁰ Read more at <https://www.jevic.com/en/vehicleinspection/>

1. The vehicle must pass the mandated roadworthiness inspection, and this includes the use of calibrated equipment for testing of braking systems, sideslip, radiation levels, emissions, and lighting etc. Auto Terminal Japan (ATJ) conducts Roadworthiness Inspections (RWI) for Accredited Inspections companies in Japan, Singapore, United Arab Emirates (U.A.E.), United Kingdom, South Africa and United States of America (USA) in compliance with the Zambian Standards ZS560. There are conformity assessment procedures are used to verify that all used motor vehicles (including motorcycles, cars, vans, buses and trucks of all sizes) exported to Zambia are in compliance with ZS560 before shipment from the supply country. Auto Terminal Japan (ATJ) adheres to the following in the standard:
 - a. Road Worthiness determined by the compliance of requirements specified in the standard.
 - a. The vehicle should be free of chlorofluorocarbons (CFC) (R12) gas.
 - b. Visual inspection
 - c. Engine check
 - d. Braking systems and components check
 - e. Steering wheel check
 - f. Suspension and underside check
 - g. Exhaust system check
 - h. Doors check
 - i. Interior check
 - j. Wheel hubs/stub axles/tires check
 - k. Instrumentation check
 - l. Electrical wiring and equipment check
 - m. Lighting system check
 - n. Obligatory reflectors check
 - o. Mirrors and wipers check
 - p. Windscreen glass check
 - q. Accessory check

The mechanical inspection criteria include (Auto Terminal Japan, n.d.).

- a. Speed Meter check
 - b. Brake check
 - c. Headlight check
 - d. Side Slip check
 - e. Exhaust/Smoke check
 - f. Drive and idle test
 - g. Radioactive contamination inspection
 - h. Interior check
2. There is no age restriction applied for vehicle imports into Zambia.
 3. Right-hand drive and Left-hand drive vehicles can be imported.
 4. Should the pre-shipment inspection not be completed prior to the vehicle export, ZABS will impose a penalty of 15% of the CIF value of the vehicle, in addition to the full cost of an inspection in Zambia.
 5. Vehicles detected with odometer tampering will be rejected and cannot be imported into Zambia.

5 Status and inventory of regulations for vehicle registration among African partners

The following section describes the vehicle registration process in the three African countries for both new and used vehicles imported.

5.1 Ghana

The Road Traffic Act 2004 (Act 683) provides the regulations governing vehicle registration in Ghana (Government of Ghana (GoG), 2004). The Act specifies the following:

Register

1. The Licensing Authority (Driver and Vehicle Licensing Authority) shall keep and maintain a register for the registration of motor vehicle and a trailer in the form that the licensing authority may determine.

Application to register.

1. A person who intends to register a motor vehicle or trailer shall:
 - a. Submit to the Licensing Authority an application, in duplicate, duly completed as specified in Form A, A1 or B in the First Schedule, or in any other form determined by the Licensing Authority and
 - b. Pay to the Licensing Authority the fee specified in the Fifth Schedule

The Government placed a ban on the importation of vehicles 10 years and older in June 1998. However, following the amendment of Customs Excise and Preventive Service (CEPS) Act 634 in 2002, the ban was lifted and replaced with the imposition of high import penalty (GoG, 2004). The following penalties applies to motor vehicles exceeding the 10-year benchmark:

- | | | |
|--|---|-------------------|
| a. Vehicle age exceeding 10 years but not 12 years | - | 5% of CIF value |
| b. Vehicle age exceeding 12 years but not 15 years | - | 20% of CIF value |
| c. Vehicle age exceeding 15 years but not 25 years | - | 50% of CIF value |
| d. Vehicle age exceeding 25 years but not 35 years | - | 70% of CIF value |
| e. Vehicle age exceeding 35 years | - | 100% of CIF value |

Commercial vehicles namely buses, coaches or vans have different penalty rates as below:

- | | | |
|--|---|-------------------|
| a. Vehicle age exceeding 10 years but not 12 years | - | 2.5% of CIF value |
| b. Vehicle age exceeding 12 years but not 15 years | - | 10% of CIF value |
| c. Vehicle age exceeding 15 years but not 20 years | - | 20% of CIF value |
| d. Vehicle age exceeding 20 years but not 25 years | - | 50% of CIF value |

Commercial vehicle namely trucks, lorries, or tipper trucks

- | | | |
|--|---|------------------|
| a. Vehicle age exceeding 10 years but not 12 years | - | 5% of CIF value |
| b. Vehicle age exceeding 12 years but not 22 years | - | 10% of CIF value |
| c. Vehicle age exceeding 22 years | - | 30% of CIF value |

Vehicles with higher engine capacities attract higher import duty rates ranging from 5% for petrol vehicles not exceeding 1000 (cubic capacity) cc to 20% for vehicles exceeding 3000 cc; and 5% for diesel cars not exceeding 1500 cc to 20% for diesel cars exceeding 2500 cc.

2. The Licensing Authority shall not register a motor vehicle if the fee required in sub-regulation 1(b) is not paid.

Verification of weights

1. An authorised person in order to register a motor vehicle shall, on the direction of the Authority, ascertain the net weight and the weight at each axle.
2. The authorised person shall make the necessary correction in the statement of weights declared by the owner.
3. Where the facility for weighing a motor vehicle is not available, the Licensing Authority shall require the owner to produce a certificate of the weight issued by the manufacturer or any other recognised agent of the manufacturer.

Registration of vehicle and trailer

1. Subject to the other provisions of this regulation, the Licensing Authority shall, on receipt of the application and the prescribed fees, register the particulars of the owner of the vehicle or trailer.
2. The Licensing Authority shall not register a motor vehicle where the vehicle:
 - a. does not comply with the provisions of these regulations applicable to the particular type or class of motor vehicle or
 - b. does not satisfy the requirements for a roadworthy certificate.
3. The Licensing Authority shall not register a right-hand steering motor vehicle without the approval of the Minister for Transport in consultation with the Minister responsible for Finance.
4. The Licensing Authority may require the production of the specification of the manufacturer or other evidence to ascertain the freight or load that the motor vehicle is constructed to carry as stated in the form or application in the case of registration of a commercial vehicle or trailer.
5. The Licensing Authority shall determine the freight or load that the motor vehicle is constructed to carry in the case of registration of a motor vehicle with a locally constructed body.
6. The Licensing Authority
 - a. Shall not register a motor vehicle of any description used exclusively for carrying personal effects of the owner, as a commercial vehicle; and
 - b. Shall register the motor vehicle, tractor or truck referred to in the paragraphs above.
7. Where a motor vehicle is registered under these regulations, the Licensing Authority shall issue in respect of that motor vehicle, a Vehicle Registration Certificate as set out in Form C of the First Schedule which specifies the following:
 - a. The name and address of the owner
 - b. The date and place of registration
 - c. The particulars of the motor vehicle
 - d. The particulars of the roadworthiness certificate of the motor vehicle and date of its expiry and
 - e. Other particulars that the Licensing Authority may specify.
8. A person driving a motor vehicle shall keep in the motor vehicle the Vehicle Registration Certificate issued under sub-regulation (8)

Tests of condition of motor vehicle

1. The owner of a motor vehicle which is used on a road shall:
 - a. ensure that the motor vehicle is submitted for examination in accordance with these Regulations; and
 - b. pay the prescribed fees specified in the Fifth Schedule for the examination.
2. The Licensing Authority shall conduct the examination to determine whether:

- a. The motor vehicle conforms to the prescribed requirements relating to construction, use, condition of accessories and other equipment, and
- b. The condition of the motor vehicle will not pose a danger or injury to a person or damage to property on the road.
- c. The Licensing Authority shall conduct the examination:
 - i. every two years for a new private motor vehicle until the motor vehicle is four years old or has covered one hundred thousand kilometers whichever comes first.
 - ii. every year for a new commercial vehicle until the vehicle is two years old or has covered one hundred thousand kilometers whichever comes first.
 - iii. every year for a private motor vehicle which is more than four years old, or which has covered more than one hundred thousand kilometers; or
 - iv. every six months for a commercial vehicle which is more than two years of age, or which has covered more than one hundred thousand kilometers.

Issue of road use sticker

1. The road use certificate shall be in the form of a sticker to be affixed to the motor vehicle.
2. the applicant shall fix the sticker on the right inner-side of the front windscreen of the motor vehicle in a manner that makes it readily identifiable by a police officer or an officer of the Licensing Authority.
3. The road use certificate is valid from the date of issue for
 - a. six months for a commercial vehicle; and
 - b. twelve months for a private motor vehicle.
4. Where the Licensing Authority is satisfied that a road use certificate has become defaced or lost, the Licensing Authority may issue a duplicate road use certificate on payment of the fee specified in the Fifth Schedule.

5.2 Tanzania

The registration of motor vehicles in Tanzania Mainland is governed by:

1. The Road Traffic Act No. 30 of 1973
2. Motor Vehicles (Tax on Registration and Transfer) Act 1972
3. Traffic (Foreign Vehicles) Rules 1973
4. Road Traffic (Motor Vehicles Registration) (Amendment) Regulations, 2001

The registration requires a person to be 18 years and above in order to be registered owner of a motor vehicle, and 14 years and above to be registered as motorcycle owner. Furthermore, the registration is only for sound mind persons.

The following documents must be submitted to the Tanzania Revenue Authority (TRA) office:

1. Application for motor vehicle registration form (MV 10) properly filled by the applicant (Except Motor vehicles owned by the Government, Tanzania Peoples Defense Forces, International organizations, Diplomatic or Consular Offices)
2. Customs declaration: Tanzania Single Administrative Document (TANSAD) and release order
3. Bank Pay in Slip to prove duty paid.
4. A copy of your Taxpayers Identification Number (TIN) certificate.
5. Cancellation certificate or registration card (used vehicles)
6. Interpol letter (if the vehicle is imported from a Southern African Development Community (SADC) member country)
7. Tax invoice (if vehicle is purchased from local car dealer)

Current motor vehicle first registration tax fees based on cubic capacity (cc) are as per the Table 6.

Table 6: Tanzania registration fees (2022)

Cubic Capacity (cc)	Fee (equivalent Euros)
501-1500 cc	75
1501-2500 cc	95
2501 and above	115
Motorcycle Registration tax	35
Personalized Registration Number	1855 for 3 years
Tax on Special Registration Number in addition to the registration tax	185

5.3 Zambia

Vehicle registration rules in Zambia are a fundamental component of the country's road traffic regulations. To operate a motor vehicle legally in Zambia, owners must adhere to specific registration requirements. Zambia's Road Traffic Act No.11 of 2002 mandates the following regulations and requirements for the registration of motor vehicles. In accordance with this law, the following regulations and requirements apply:

1. **Valid Insurance Cover Note Requirement**
It is required that every vehicle possess a valid insurance policy, evidenced by an insurance cover note. This document must detail the policy's extent, number, and period of validity, ensuring compliance with financial protection laws against liabilities from accidents.
2. **Physical Inspection Report Compliance**
All vehicles are subjected to a mandatory physical inspection by an authorized agency. The resulting inspection report must confirm the vehicle's safety, roadworthiness, and adherence to environmental standards, including checks on the engine, brakes, lights, tires, and emission levels.
3. **Interpol Motor Vehicle Clearance Mandate (Zambia Police)**
In compliance with security regulations, a clearance from the Zambia Police, in the form of an Interpol Motor Vehicle Clearance, is required for all vehicles. This clearance ensures the vehicle is not associated with any criminal activities and is not listed as stolen, both in Zambia and internationally.
4. **Customs Clearance Certificate Regulation (ZRA)**
For vehicles that are imported, obtaining a Customs Clearance Certificate from the Zambia Revenue Authority is mandatory. This certificate is a testament that all applicable customs duties and taxes have been paid, a prerequisite for the legal importation of vehicles into Zambia.
5. **Identification of the Owner/Importer Requirement**
Providing a copy of valid government-issued identification for the vehicle's owner or importer is obligatory. This identification links the vehicle to its legal owner or importer, ensuring accountability. Corporate entities must present their company registration documents.

The Zambia's Road Traffic Act No.11 mandates that vehicle owners provide accurate documentation, including proof of ownership and roadworthiness certificates.

Furthermore, these rules often include stipulations on the registration of foreign-owned vehicles temporarily used within the country. Non-compliance with these regulations can result in fines or legal repercussions, making it crucial for vehicle owners to abide by the established guidelines. The authorities and institutions involved in vehicle import in Zambia can be found in Appendix 2: Authorities involved in vehicle import in Zambia.

New Motor Vehicles

The import requirements include invoice, road manifest or bill of lading as the case may be, export bill of entry from country of export; The valuation of new vehicles is based on the World Trade Organization Agreement valuation method and duties and taxes are applied on Ad valorem basis (according to value of goods) (World Trade Organization, 2000) . In essence, ad valorem taxation means the amount collected rises and falls proportionately with the declared or assessed dollar value of the item, property, or transaction being taxed. Both the valuation and the percentage rate play a role in the liability owed. For imported new vehicles, the valuation is determined based on the World Trade Organization (WTO) customs guidelines which consider the transaction price, transport and insurance costs, royalty payments among other things. The duties and import taxes on these newly imported vehicles would then be charged as a percentage (ad valorem basis) of this framework, and then import taxes are levied as a percentage of that value. New Vehicle attract the following, import duty; Import VAT and Excise Duty. In addition, motor vehicle registration fee is also charged.

Used Motor Vehicles

The import requirements include invoice, road manifest or bill of lading as the case may be, export bill of entry from country of export. In addition, Japan Export Vehicle Inspection Center Co. Ltd (JEVIC) Inspection Certificate (Required by the Zambia Bureau of Standards) and Interpol Clearance are also required. In the case of used and second-hand motor vehicles the duties and taxes are specific and based on the age and type of motor vehicle. The tax amounts are legislated and therefore known to the importer and customs broker. In addition, motor vehicle registration fee and a carbon emissions surtax are payable.

6 Status and inventory of regulations for vehicle scrappage among African partners

The following section describes the vehicle scrappage policies. The median age of used vehicles imported to Africa is 15 years (ITF, 2023). This means many of the vehicles entering African roads are lagging in modern crash safety standards of the exporting countries. Many of these vehicles continue to be used several years after import. Scrapping old vehicles is an important step towards speeding up of phasing out these older, unsafe vehicles to modernize and increase the general safety of the nation's fleet. Scrappage typically refers to end-of-life vehicles discussed in Section 2.1.4, Case 1 or vehicles older than a certain age. End-of-life vehicles are those deemed no-longer roadworthy based on fitness and emission tests. Scrappage policies encourage private individuals to voluntarily surrender older vehicles in return for payment, tax incentives, and discounts on new vehicles, such as the recent policy implemented in India (G.S.R. 720(E), 2022; G.S.R. 221(E), 2022; Ministry of Road Transport and Highways, n.d.).

6.1 Ghana

Formalised channels and certified facilities for disposal of vehicles are now underdeveloped in Ghana. Private (informal) individuals (scrap dealers, their agents and collectors) scan for scrap vehicles every day in the cities and towns. This is a common practice in the absence of national initiatives.

Vehicle scrapping or dismantling is manually done at the Old Fadama Scrap Yard (OFSY), an informal scrap yard in Accra in a two-stage process: (1) Pre-treatment and (2) Further processing.

During the pre-treatment stage, the vehicle is dismantled into its main fractions such as body panels, drive train components, interior and the vehicle body is cut into pieces for easy handling. The fractions that are recovered during pre-treatment and neither sold nor dumped undergo a series of further processing depending on the contents and material. During all the sequence steps (second stage), further fractions that need further dis mantling are further processed to extract and separate the final materials (GIZ, 2022).

Most of the recovered parts are sold as steel scrap or spare parts. The number of vehicles scrapped annually at the OFSY is unknown. There are no governmental/state incentives to phase-out or scrap old vehicles.

6.2 Tanzania

The Tanzania Road Traffic Motor Vehicles Registration Regulations Part 8 on De-registration of Motor vehicles states an application for de-registration of vehicles shall be accompanied by certificate that the vehicle has been scrapped. Part 10 covers scrapping of vehicles where all de-registered motor vehicles shall be by authorized scrappers. Every person whose vehicle has been de-registered shall cause that vehicle to be scrapped¹¹.

The Environmental Management (Hazardous Waste Control And Management) Regulations of 2021 of Tanzania Section 34 states the Minister responsible for matters relating to the environment may issue permit to own or operate plant or facility or site for treatment, recovery, recycling, reuse, or disposal of hazardous waste where the Minister is satisfied that the operation of the plant, facility or site is conducted in a relevant zoned site and in an environmentally sound manner.

¹¹ The Road Traffic (Motor Vehicles Registration) Regulations, 2001

The Tanzania National Environmental Management Council (NEMC) receives, and processes in-country applications involving control and management of hazardous waste, establishes and maintain information register and data related to the control and management of hazardous waste.

A person who has been granted a permit to own or operate a plant or facility or site for treatment, recovery, reuse, recycling or disposal of hazardous waste shall, amongst other regulations, ensure that the treatment plant, disposal facility or site operation is conducted in a relevant zoned site, is labelled with appropriate and visible hazard and safety signs provided with first aid kit and fire extinguisher, is compatible with the treatment plant or disposal facility or site, it does not pose risk to the public and environment, provide adequate protective and safety gears to personnel involved in handling the hazardous waste, provide basic training to staff involve in handling and disposal of hazardous waste and comply with any condition which the Minister may impose.

At the moment, there are no governmental / state incentives or clear modalities to phase-out or scrap old vehicles.

6.3 Zambia

There is no motor vehicle scrappage policy in effect. To encourage the phase-out of older, less efficient vehicles, a scrappage policy, also referred to as "cash for clunkers," might be introduced (Banda and Chikuba, 2014). These programs, which are implemented in other nations, provide car owners with refunds when they trade in their older cars for newer, more fuel-efficient versions. But putting a scrappage strategy into place calls for serious thought and preparation because it entails giving subsidies for buying new cars and spending a large amount of money for advantages that may be hard to measure (Banda and Chikuba, 2014). This strategy seeks to decrease the number of older vehicles on the road, but a full assessment of its viability and efficacy in the Zambian environment is required.

As an early step towards implementing more comprehensive vehicle scrappage policy, the Road Transport and Safety Agency (RTSA) has initiated a proactive deregistration program, in full accordance with the provisions outlined in the Road Traffic Act No. 11 of 2002. This ongoing initiative is strategically tailored to effectively address the issue of inactive motor vehicles and trailers. Under this program, vehicles and trailers that have remained unlicensed or unexempted for a continuous period of five years are currently undergoing the deregistration process, followed by the reassignment of their registration marks to other vehicles. While deregistration, in theory, would put a vehicle out of traffic, in practice, these vehicles can still be continued to be driven where enforcement is not stringent enough. An important next step is adopting a vehicle scrappage policy to remove any possibility of driving these vehicles again once put out of traffic.

7 Consumer rating programmes

The New Car Assessment Program (NCAP) has played a crucial role in increasing awareness of vehicle safety among the public in many parts of the world. NCAP programs are implemented by various organizations worldwide to evaluate and communicate the safety performance of vehicles to consumers. NCAP programs provide comprehensive safety information to consumers, including details on crash test results, safety features, and potential risks associated with specific vehicle models. The availability of detailed information empowers consumers to make informed decisions when purchasing a new (or used) vehicle and helps promote safety as a critical factor. This can help significantly improve the safety standards of both new and used vehicles imported into the African continent. Consumer Rating for new vehicles is very low in the three African countries, which makes it difficult for vehicle customers to understand the safety level of the purchased vehicles. An increased awareness could create a demand for safer vehicles by public vehicle customers.

Updates of legal requirements are generally a slow process. When requirements are global, the administration process takes time. NCAP encourage vehicle manufacturers to build safer vehicles and make this information easily accessible to consumers. The first NCAP was initiated by the National Highway Traffic Safety Administration in the United States in 1979. This has later inspired other regions around the world like the development of the New Car Assessment Program in Europe, Euro NCAP (Hobbs & McDonough, 1998). These assessment programs are so far limited to passenger cars. Euro NCAP has recently announced an upcoming assessment program for heavy duty vehicles. The Malaysian Institute of Road Safety Research (MIROS) has recently launched the first powered two-wheeler rating program called MYMAP (Zulkipli et al., 2021).

Euro NCAP has performed safety campaigns also for minicars (e.g., quadricycles, vehicle category L₇ according to Consolidated Resolution on the Construction of Vehicles (R.E.3) Revision 7 (United Nations Economic Commission for Europe, 2023) without further successful continuation.

7.1 Best practice implementations globally

7.1.1 Global NCAP

The Global NCAP¹² was initiated by the Towards Zero Foundation¹³. The organisation is a UK-registered charity. The first crash tests were performed in India 2014¹⁴. In Africa, they performed the first ever crash test through their program called “#SaferCarsForAfrica” in 2017¹⁵ (Global NCAP, 2017). Global NCAP crash tested Volkswagen Polo Vivo, Datsun Go+, Toyota Etios, Renault Sandero and Chery QQ3 manufactured for South Africa. While no car was awarded a five-star rating, the Cherry QQ3 performed the worst in the test scoring zero-stars for adult and child occupant protection. The program applies a less sophisticated protocol than global NCAPs other programs.

¹² <https://www.globalncap.org/>

¹³ <https://www.towardszerofoundation.org/>

¹⁴ See press release from Global NCAP: <https://www.globalncap.org/news/volkswagen-withdraws-zero-star-without-air-bags/>

¹⁵ See press release from Global NCAP: <https://www.globalncap.org/news/global-ncap-and-aa-south-africa-launch-saf-ercarsforafrica>

7.1.2 Japan NCAP

The Japan NCAP¹⁶ is a joint project by the Ministry of Land, Infrastructure, Transport and Tourism (MILT)¹⁷ and the National agency for Automotive Safety & Victims' Aid (NASVA)¹⁸. The organisation started their crash tests in 1995¹⁹.

7.1.3 Euro NCAP

The Euro NCAP²⁰ was initially modelled after the American US NCAP²¹ and handled by the European Experimental Vehicles Committee (EEVC)²². The first to join this car safety test programme was the Swedish Road Administration²³, the Fédération Internationale de l'Automobile²⁴ and the International Consumer Research & Testing²⁵. It is backed by 14 members (7 governmental organisations) and several consumer organisations in EU. The first crash test was performed in 1997²⁶.

7.1.4 US NCAP

The New Car Assessment Program, later referred to as US NCAP, was created in 1979 by the United States National Highway Traffic Safety Administration²⁷. Some critics have recommended numerous improvements to modernize the protocol and it is currently no longer the benchmark it was initially (National Association of City Transportation Officials, 2022).

7.2 Awareness of rating programme among African partners

7.2.1 Ghana

A study by Narteh et al. (2012) revealed that Ghanaian car consumers consider the attributes of a car, emotional connection to the car brand, external influences (country-of-origin), brand awareness and accessibility (how convenient it is to obtain the car brand) when they buy a car. Safety features and considerations were not prioritised.

Beyond this study, very little is known about consumer ratings and awareness programmes, especially on safety grounds.

¹⁶ <https://www.nasva.go.jp/mamoru/en/about/about.html>

¹⁷ <https://www.mlit.go.jp/en/>

¹⁸ <https://www.nasva.go.jp/mamoru/en/>

¹⁹ <https://www.nasva.go.jp/mamoru/en/about/about.html#03>

²⁰ <https://www.euroncap.com/en>

²¹ <https://www.nhtsa.gov/ratings>

²² https://www.eevc.net/EEVC/EN/Home/home_node.html

²³ <https://bransch.trafikverket.se/en/startpage/>

²⁴ <https://www.fia.com/>

²⁵ <https://www.international-testing.org/>

²⁶ <https://www.euroncap.com/en/about-euro-ncap/timeline/>

²⁷ <https://www.nhtsa.gov/>

7.2.2 Tanzania

Government bodies, regulatory bodies, authorities, vehicle dealers, importers have low or very limited awareness or application of new or used vehicles safety Consumer Rating Programmes. In our investigations, we found that Tanzanians consumers consider in purchasing personal vehicles revealed the following prioritisation: interior and exterior conditions, vehicle brand and model, odometer mileage, purchase and running costs, year of manufacturing, engine performance/speed, energy efficiency, vehicle safety rating. Most consumers currently find such information online through various social media and web-based platforms.

7.2.3 Zambia

In Zambia, the insufficient awareness among consumers regarding the quality and safety standards of motor vehicles has emerged as a prominent factor motivating the purchase of substandard imported vehicles (Katungu and Taonaziso, 2021). They found that this issue is compounded by several interconnected factors. Firstly, there is often a lack of accessible information and educational resources to help consumers make informed decisions when purchasing vehicles, especially concerning essential quality and safety criteria. The intricacies of international automotive standards and regulations can be overwhelming, making it challenging for consumers to differentiate between substandard and high-quality vehicles.

Additionally, a deficiency in comprehensive labelling and information disclosure, such as the vehicle's origin, manufacturing standards, and adherence to local regulations, further complicates the matter. In response to this challenge, a concerted effort is needed to raise consumer awareness, facilitate accessible education on vehicle quality, and implement measures to enhance transparency in the vehicle market, ultimately mitigating the prevalence of substandard imports and ensuring safer, more reliable transportation options for Zambian consumers (Katungu and Taonaziso, 2021).

8 Gap analysis and recommendations for improving vehicle safety standards and regulations

The following recommendations are common for all three countries.

8.1 Compliance with UN regulations

None of the three countries (Ghana, Tanzania, and Zambia) are contracting partners of any of the UN and international vehicle standards and regulations.

Recommendation

To maintain compliance with global automotive norms and standards:

1. The three countries should seek active collaboration agreements with relevant UN and international bodies. As contracting partners, these countries can actively contribute to the development of these standards while also gaining knowledge and resources from a shared pool of resources and knowledge. The purpose of these regulations and rules is to enhance compliance and alignment with international automotive norms and standards.
2. There should be a thorough assessment of the countries' current vehicle standards and regulations against international and UN standards. This will ensure that Ghana, Tanzania, and Zambia's transportation policies are aligned with global standards and will foster safer and more environmentally friendly transportation practices.

8.2 Vehicle inspection and registration regulations

Vehicle inspection and registration regulations are in place in all three countries, but there is room for improvement to raise the standards to that international standards such as those prescribed in UN agreements and FMVSS regulations for road-worthiness.

Recommendation

It is imperative that the three countries invest heavily in the development and implementation of comprehensive vehicle inspection at the time of import and improve registration frameworks to address these shortcomings. These strategies should be aligned with international best practices. To accomplish this, a number of protocols must be updated, use modern technology to ensure efficient data management, adequate training must be provided to all personnel involved in the inspection and registration process, and stringent enforcement of these protocols must be implemented.

8.3 Vehicle scrappage policy

The three countries lack a comprehensive and widely implemented policy for the scrapping vehicles are no longer road-worthy or outdated. This gap presents several challenges, including the effects the continued operation of these older vehicles such increased pollution, increased risk of serious injuries or fatalities due to lower safety standards or the risk posed by vehicles that are not roadworthy. This is exaggerated by absence of a structured framework for incentivizing the replacement of older vehicles with newer, safer, more efficient, and environmentally friendly models.

Recommendation

To address this gap and promote a more sustainable and environmentally responsible approach to vehicle management, it is recommended that the three countries consider the following measures:

1. **Develop a vehicle scrappage policy:** Formulate a clear and comprehensive vehicle scrappage policy that outlines the criteria for identifying vehicles that should be scrapped. The policy should consider factors such as age, emissions standards, minimum safety requirements, and overall condition.
2. **Environmental impact assessment:** Conduct a thorough environmental impact assessment to evaluate the emissions and environmental effects of older vehicles currently in operation. This data will serve as a basis for policy decisions.
3. **Emission standards:** Align vehicle scrappage criteria with emission standards and global best practices to reduce the environmental impact of vehicle emissions. It is also recommended to follow global best practices such as Euro emission standards.
4. **Public awareness campaigns:** Launch public awareness campaigns to educate vehicle owners about the benefits of retiring old vehicles, in terms of environmental impact, potential cost savings from owning more fuel-efficient vehicles, and increased safety standards.
5. **Collaboration with automotive industry:** Collaborate with the automotive industry to ensure a smooth transition from older to newer vehicles. This may involve partnerships with vehicle manufacturers and dealerships to facilitate the replacement process. Further, there must be an emphasis on increasing the vehicle safety standards and the minimum requirement.
6. **Regulations and enforcement:** Establish regulations and enforcement mechanisms to ensure compliance with the scrappage policy. This includes establishing scrappage centres and processes for safe and environmentally responsible disposal of end-of-life vehicles.
7. **Data collection and reporting:** Develop a system for tracking and reporting the number of vehicles scrapped and replaced because of the policy. This data will be essential for evaluating the effectiveness of the program.
8. **Periodic review:** Regularly review and update the scrappage policy to account for changing emission standards, technological and safety advancements, and environmental goals.

By implementing a vehicle scrappage policy and associated measures, these countries can bridge the existing gap in addressing aging vehicles, increase vehicle safety, and contribute to improved air quality and reduced emissions in the country.

8.4 Consumer ratings

There is a lack of awareness regarding the quality and safety standards of motor vehicles in the three countries due to the insufficient exposure to information. Consumer ratings have played an important role in increasing vehicle safety standards in many parts of the world by making vehicle safety information accessible and easy to understand by the general public. Increasing its awareness in these countries can support buyers with making informed decisions with regard to safety. While NCAPs have a direct impact on the new cars, they have an extended impact on older cars as well. These programs can over time increase the overall safety standard of the entire fleet of vehicles in these countries.

Recommendation

To address this gap, the following steps should be taken:

1. Increase collaboration in the three countries with existing NCAP initiative. In particular, leverage on the work already initiated by Global NCAP as part of the program “#SaferCarsForAfrica.”
2. Launch comprehensive and targeted consumer education programs to raise awareness about the importance of quality and safety standards in motor vehicles. This can include public campaigns, workshops, and seminars conducted in collaboration with relevant government agencies, non-profit organizations, and industry stakeholders. These programs should focus

- on educating consumers about recognizing reliable safety features, understanding quality certifications, and making informed purchasing decisions.
3. Encourage transparency within the automotive industry by promoting clear and easily accessible information regarding the safety and quality standards of motor vehicles. Establish a user-friendly platform or website that provides consumers with detailed information about safety ratings, compliance with international standards, and any recalls or safety-related issues. This platform can empower consumers to make informed choices and hold manufacturers accountable for meeting established standards.
 4. Work closely with automotive dealerships, manufacturers, and industry associations to disseminate information about safety and quality standards. Encourage dealerships to provide educational materials to customers during the purchasing process, highlighting safety features, quality certifications, and maintenance guidelines. Foster collaboration with industry players to ensure that accurate and up-to-date information is readily available to consumers, promoting a culture of safety and quality awareness.

8.5 Data availability

The current method of capturing data for the number of registered motor vehicles in the three countries does not distinguish between used and new vehicles. As a result, there is a significant gap in the ability to provide separate and accurate aggregation of statistics for these two categories. Without this differentiation, it is challenging to analyse trends, assess the environmental impact, and make informed policy decisions related to vehicle registration and scrappage.

Recommendation

To address this gap and enhance data accuracy for analysis, it is recommended that the relevant road transport, road safety authorities, and local and national stakeholders should consider implementing the following measures:

1. Data segmentation and reporting mechanism: Develop a comprehensive data segmentation system that categorizes registered motor vehicles as either "used" or "new" based on specific criteria such as age, emission standards, or year of production. This system should be accessible to relevant stakeholders and the public.
2. Improved data collection: Enhance data collection methods to gather information on the year of production, emission standards, and overall condition of each registered vehicle. This information should be consistently collected during the registration or renewal process.
3. Complementing with exporting region's database: The EU (through MOVE-HUB) or other exporting regions maintains databases regarding type approval certificate, registration, and circularity data for used vehicle being exported from there. The African database should complement this data to support verification on arrival.
4. Database enhancement: Upgrade the national motor vehicle register databases to accommodate the newly captured data elements related to vehicle age and condition.
5. Periodic data audits: Conduct regular audits to ensure the accuracy and reliability of the data collected. Implement validation processes to reduce errors and discrepancies in the data.
6. Environmental impact assessment: Utilize the segregated data to conduct environmental impact assessments which will enable authorities to monitor the emissions and environmental effects of older vehicles.
7. Policy formulation: Use the differentiated data to inform policy decisions to guide to vehicle scrappage, emissions control, and implement incentives for the purchase of newer and cleaner vehicles.

9 Conclusions

This deliverable, within the European funded project AfroSAFE, has reviewed the existing standards and regulations concerning vehicle import and registration related to passenger cars, trucks, and motorized two-wheelers, in three African countries – Ghana, Tanzania, and Zambia.

The task was based on an investigation of vehicle standards and safety ratings for new and used vehicles. After consideration of the local African circumstances, this report recommends potential updates for vehicle standards, as well as the need for safety ratings of new and used vehicles. The report concludes with proposals to enhance national guidelines regarding vehicle import and registration. The full potential of vehicle safety regulations is achieved by working on all elements of the safe system. The other AfroSAFE deliverable addresses the other pillars and recommendations for them.

While most of the recommendations in the deliverable are focused on passenger cars, they are applicable to motorcycles, buses, and other commercial vehicles as well, with relevant updates.

Data collection and availability

The current method of capturing data for the number of registered motor vehicles in the countries does not always distinguish between used and new vehicles. As a result, there is a significant gap in the ability to provide separate and accurate internationally comparable statistics for these categories. Without this differentiation, it is challenging to analyse trends, assess the environmental impact, and make informed policy decisions related to vehicle registration and scrappage. To address this gap and enhance data accuracy and analysis, it is recommended that the relevant authorities consider implementing internationally comparable statistics.

Crashworthiness and Consumer ratings

There is an urgent need to improve the level of crash roadworthiness of imported vehicles to the African countries from the exporting countries. As most vehicles in Africa are imported from Europe, Japan, and the USA, the eventual passage into regulation and adoption can have a resounding impact on road safety by limiting and stopping the export of vehicles that do not fulfil the environmental standards or roadworthiness requirements of the exporting nation. South Africa, Nigeria, Egypt, and Tunisia have already adopted the UN regulations. Currently, the three African countries, Ghana, Tanzania, and Zambia, have not yet adopted the UN Vehicle Safety Regulations, which would greatly impact vehicle safety. Therefore, an updated compliance to UN vehicle standards and regulations would be needed. The recommendation is that relevant governmental stakeholders should work towards adopting these international vehicle standards and regulations to ensure that vehicles compliant with these standards and regulations are imported to the country.

The awareness of vehicle rating in the New Car Assessment Programs (NCAP) is very low in the three countries, so consumer awareness and prioritization on vehicle safety is therefore low. This could be increased by local education and media campaigns. An increased awareness could create a demand for safer vehicles by the public vehicle customers.

Vehicle scrappage policies

There is also the need to develop clear and comprehensive vehicle scrappage policies in these countries that outlines the criteria for identifying end-of-life vehicles. The three countries lack a comprehensive and widely implemented policy for the scrapping of used or old vehicles. When vehicle scrappage policy is implemented, it can remove any possibility of driving these vehicles (which are not roadworthy) again once they are put out of traffic. This gap presents several challenges, including the continued operation of aging and potentially environmentally unfriendly vehicles, difficulties in managing vehicle emissions, and the absence of a structured framework for incentivizing the replacement of older vehicles with newer, more efficient, and environmentally

friendly models. Therefore, they should formulate a clear and comprehensive vehicle scrappage policy that outlines the criteria for identifying vehicles that should be scrapped. The policy should consider factors such as age, emissions standards, and overall condition.

Strategic priorities for improving vehicle safety in Africa

Table 7 provides a summary of the strategic priorities to improve vehicle safety in Africa. These can help advance and leapfrog road safety in the three AfroSAFE partner countries.

Table 7: Priorities for vehicle safety activities in the three countries

Timing	Action	Prioritize
Short-term (1 year)	<ul style="list-style-type: none"> • Increase awareness of vehicle rating in the New Car Assessment Programs (NCAP), via public education and media coverage • Start investigating more robust roadworthiness and environmental regulations, for used imported vehicles. • Implementing of internationally comparable statical data • Improving vehicle registration statistics for all vehicle categories. 	High
Near-term (1-5 years)	<ul style="list-style-type: none"> • Adopting UN vehicle safety regulations • Adopting FMVSS vehicle safety regulations • Setting minimum requirements on the level of crash and roadworthiness of both new and used, imported vehicles to the African countries. • Working towards implementing NCAP at a national level or African Union level. 	High
Long-term (5 years)	<ul style="list-style-type: none"> • Develop clear and comprehensive vehicle scrappage policies, to improve and modernize the vehicle fleet. • Acceding to and ratifying all seven UN agreements, with the minimum being UN 1958, UN 1997, and UN 1998 agreements. 	High

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Appendix 1: Test requirements for used vehicles in Ghana

Steering

1. A used motor vehicle shall originally have left-hand steering.
2. The steering system shall turn the wheels of the vehicle to the left and right.

Brakes

1. The motor vehicle shall have a functional braking system.

Seats

In the case of Category M vehicles,

1. The width of the seat from the front to the back shall be at least 40 cm.
2. Seats designed facing the same direction should have a distance of 70 cm between each other and at least 30 cm between the front edge of each seat.
3. Seats designed facing each other should have a distance of at least 50 cm clear of obstruction between the front edge of one seat and the front edge of the seat facing it.

Vehicle entrance

In the case of Category M₃ vehicles,

1. There should be at least two entrances for passengers, one of which may be an emergency exit, as approved by the Licensing Authority.
2. At least one of the entrances for passengers is 60 cm or more in width and where there is no exit at the rear of the vehicle there is an emergency exit on the left side of the motor vehicle.
3. An entrance or exit, other than an emergency exit, is on the right side or rear side of the motor vehicle.
4. The motor vehicle has an emergency exit which is fitted with a door which is kept closed except in an emergency and an entrance or exit door which is capable of being opened by on operation of the locking mechanism and is designed in a manner that enables it to readily open in case of need from both the inside and the outside of the vehicle.

Seatbelts

1. The motor vehicle shall have functional seatbelts for all rows and seats of the motor vehicle.

Lighting devices and reflectors

A passenger vehicle shall be fitted with the following lamps.

1. Headlamps
The light from headlamps shall be identical and shall either be white or yellow.
2. Parking lamps
3. A motor vehicle shall be equipped with a parking lamp:
 - a. In front with two parking lamps which shall be visible directly from the front left side of the vehicle.
 - b. At the rear with two parking lamps which shall be visible directly from the rear left side of the vehicle.
3. Rear lamps
4. A motor vehicle shall be fitted with at least one lamp on each side at the rear.
4. Number plate lamp(s)

5. The motor vehicle shall be fitted with at least one number plate lamp at the rear illuminating the number plate by means of a white light, which shall make every letter and figure of such a plate distinguishable.
5. Reversing lamps
6. A motor vehicle shall be fitted with a reversing lamp emitting a white light, which illuminates the road to the rear, or under the vehicle. Such a lamp shall be under the control of the driver and shall be either so fitted as to operate only when the motor vehicle is placed in reverse gear or be connected with a device by which the driver shall be made aware that the lamp is in operation. No more than two such lamps shall be fitted to a vehicle and no light shall be emitted therefrom except when the vehicle is reversing or about to reverse.
6. Brake lamp
7. The light from brake lamps shall be red, and the brake lamps shall be automatically turned on when the main brake system is activated.
7. Direction indicator lamp
 - a. Indicator lights lamps shall be installed at the front and rear of an automobile, and shall be positioned bilaterally and symmetrically in pairs, respectively.
 - b. The colour of indicator lights shall be red or amber.
 - c. If a trailer(s) is/are being drawn, the trailer(s) shall carry similar indicators showing a flashing light visible from a reasonable distance to the rear.
 - d. The direction indicators shall be so fitted that the indicators on one side can be operated separately from those on the other side.
8. Stop lamps
8. Any parking lamp may form part of a headlamp, fog lamp or a front position lamp. The parking lamp shall be white in front, red at the rear, and amber if mutually incorporated in the side direction indicator lamps or in the side-marker lamps.
9. Optional lamps
 - a. End outline marker lamps
 - i. A motor vehicle may be equipped.
 - ii. In front on each side of its longitudinal centreline with one end-outline-marker lamp which shall be visible directly from the front and
 - iii. At the rear on each side of its longitudinal centreline with one end-outline-marker lamp which shall be visible directly from the rear
 - b. The end-outline-marker lamps shall
 - i. Be fitted as near as possible to the outer-edges of the front and rear of the motor vehicle concerned and as high as possible, but not necessarily beyond the top of the cab height at the front and as high as possible at the rear
 - ii. Emit a white light to the front and red light to the rear.

Audible warning devices (Horns and Sirens)

1. A motor vehicle shall be fitted with an electric or pneumatic horn, or with a bulb horn which gives out a single note when the bulb is pressed.

Speedometer and odometer

1. A used motor vehicle shall have a speedometer indicating speed in kilometres per hour.
2. Where the speedometer is a dial, the speedometer shall have a functional dial illumination.
3. The importation of any motor vehicle that lacks an odometer at the time of importation is prohibited.
4. The importation of any motor vehicle with an odometer that has been tampered with or any motor vehicle with an odometer reading that does not correctly record the distance that the vehicle has been driven will not be allowed.

Engine

1. The motor vehicle engine shall be securely covered with a bonnet and fenders so as not be a source of danger.

Heating, Ventilation and Air Conditioning (HVAC)

1. Where an air conditioning system is fitted on the vehicle, the refrigerant shall not be chlorofluorocarbons (CFCs).

Suspension system

1. The motor vehicle shall be fitted with a front and rear functional suspension.

Tyres

1. The motor vehicle shall be fitted with pneumatic tyres manufactured for use in hot and normal weather conditions and in conformance with the relevant national standard.
2. Tyres that are meant to be used in snow conditions only are prohibited.
3. The motor vehicle shall not be fitted with a tyre that is four years older than the date of manufacture.
4. The tyres shall be of specified sizes and suited to withstand the maximum permissible loads of the motor vehicle to which they are fitted.

Glazing materials

1. A motor vehicle shall not have a windscreen, window or partition made of non-transparent material-
 - a. Unless such material affords the driver sufficient visibility for safe driving of such vehicle.
2. The front windshield or windscreen shall be fitted preferably with laminated glass and shall not be tinted. The window glass shall be fitted with at least toughened-glass.

Rear-view mirrors

1. A motor vehicle shall be fitted with a rear-view mirror or mirrors enabling the driver of such vehicle, when he or she is in the driving position, to see in clear weather a clear reflection of traffic to the rear provided that the provisions of this paragraph shall not apply in respect of a tractor.

Wipers

1. A motor vehicle shall be fitted with a windscreen with at least one windscreen wiper which shall be capable of operation by other than manual means and shall, when in operation, wipe the outside of the windscreen directly in front of the driver, continuously, evenly and adequately

Electric vehicle and hybrid-electric vehicle

1. Electrical hazard marking shall be visible on body of vehicle.
2. Traction motors shall be adequately secured with no immediate risk of falling, a short-circuit or shock hazard. Shock hazards include shields not in place, damaged or deteriorated electrical insulation.
3. Charging cable shall not be damaged, corroded or with deteriorated insulation such that it poses a shock hazard.

There shall be no evidence of electrolyte leakage from the high voltage rechargeable energy storage system.

Appendix 2: Authorities involved in vehicle import in Zambia.

Vehicle importations in Zambia are subject to stringent regulations enforced by various institutions to ensure roadworthiness, taxation compliance, lawful entry, and environmental responsibility.

These institutions play pivotal roles in the process, each with a specific focus:

1. **Zambia Bureau of Standards (ZABS)**
Prior to shipment, ZABS, in coordination with appointed agencies like Japan Export Vehicle Inspection Center Co. Ltd (JEVIC), ensures that imported vehicles meet stringent roadworthiness standards, contributing to safer and more reliable road transportation.
2. **Zambia Revenue Authority (ZRA)**
ZRA oversees taxation aspects, ensuring that the importation process adheres to the required tax and customs regulations, which are essential for revenue collection and financial compliance.
3. **Interpol:**
Interpol is involved in the clearance process, ensuring that vehicles are lawfully entered into the country, reducing the risk of illegal or unauthorized importation.
4. **Road Transport and Safety Agency (RTSA)**
RTSA is responsible for the examination, registration, and licensing of vehicles in Zambia, enforcing crucial rules related to vehicle operation and safety on the country's roads.
5. **Zambia Environmental Management Agency (ZEMA)**
ZEMA plays a vital role in controlling environmental pollution associated with vehicle emissions by implementing measures such as carbon emissions surtax, contributing to a more eco-friendly and sustainable transportation sector.

These institutions collectively shape the regulatory framework governing vehicle importations in Zambia, ensuring that vehicles meet safety and environmental standards, comply with taxation regulations, and are legally introduced into the country.

Appendix 3: Import clearance process in Tanzania

Import clearance permit may be issued by the Bureau in Form No. 10 where in the opinion of TBS.

1. The importer has complied with customs requirements and there are pending clearance procedures that will take more than seven days to be addressed.
2. The consignment is in small quantity and has undergone physical verification.
3. The manufacturing facility of the imported commodities or products have undergone Good Manufacturing Practice Inspection; and
4. The products or commodities have been manufactured by foreign companies licensed to use Bureau's standards mark.
5. The permit may be issued with or without conditions as the Bureau may deem fit depending on circumstances pertaining to the clearance of the consignment.
6. The consignment may be released with conditions upon the written request to the DG made by the importer as a commitment to abide with the conditions therein.
7. The TBS DG may, after receiving and being satisfied with the written request from the importer, issue a conditional release declaration Form No. 11.
8. The TBS DG shall, upon evaluation of the conditional release declaration form and being satisfied that, the conditions set out in the form have been complied with, issue an import clearance permit.

Where the permit has been issued with conditions, the importer shall not unload, distribute, sell, use or transfer the consignment either in part or whole to any person or any place other than to the address specified in the conditional release declaration form pending the issuance of the batch certificate or any other directives as may be provided by the Bureau.