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**Contract Title: IMPLEMENTATION OF THE SUPPORT TO
THE TRANSPORT SECTOR DEVELOPMENT PROGRAMME:**

**Lot 1: Support to the AUC Department of Infrastructure and
Energy in transport policy harmonization and transport sector
services development & Support to PIDA PAP for the start-up of
smart corridor activities**

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**Transport Policy Framework
(White Paper)**



Addis Ababa, September 2016



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A project implemented by
NTU/LB Consortium

Implementation of the Support to the Transport Sector Development Programme

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Transport Policy Framework (White Paper)

- vs. DRAFT -

September 2016

Disclaimer:

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The opinions expressed are those of the authors and not necessarily those of the European
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Louis Berger

A project implemented by
NTU/LB Consortium

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List of Acronyms

ACP	The African, Caribbean and Pacific Group of States
AFCAC	African Civil Aviation Commission
AFCAP	African Civil Aviation Policy
AFI CIS	AFI Cooperative Inspectorate Scheme
AFI PLAN	Comprehensive Regional Implementation Plan for Aviation Safety in Africa
AFRAA	African Airlines Association
AIKP	Africa Infrastructure Knowledge Program
AOC	Air Operator Certification
APIRG	AFI Planning and Implementation Regional Group
ATAG	Air Transport Action Group (
ATC/C	Air Traffic Control/ Centre
ATM	Air Traffic Management
ATSPs	National Air Traffic Service Providers
AU	African Union
AUC	African Union Commission
BASAs	Bilateral Service Agreements (Aviation)
COMESA	Common Market for Eastern and Southern Africa
COSCAPs	Cooperative Development of Operational Safety and Continuing Airworthiness Programmes
EASAF	Eastern and Southern Africa regional office of ICAO
EI	Effective Implementation
EGNOS	Satellite-based augmentation system
EU	European Union
FESARTA	The Federation of East and Southern African Road Transport Associations
FCL	Full Container load
GASP	Global Aviation Safety Plan
GDP	Gross Domestic Product
GNSS	Global Navigation Satellite Systems
GSI	Global Safety Initiative
IATA	International Air Transport Association
ICA	Infrastructure Consortium for Africa

ICD	Inland Container Depot
ICAO	International Civil Aviation Organization
ILS	Instrument Landing Systems
IOSA	International Operational Safety Audit
IMO	International Maritime Organization
IOSA	IATA Operational Safety Audit
LCL	Less than Container Load
MDGs	Millennium Development Goals
MID	Middle Eastern Office of ICAO (for Northern Africa)
MRO	<i>Aircraft Maintenance, Repair & Overhaul Companies</i>
NEPAD	New Partnership for Africa's development
PAP	Priority Action Plan
PBN	Performance-based Navigation
PIDA	Programme for Infrastructure Development in Africa
RAIAs	Regional Accident Investigation Agencies
RASG-AFI	Regional Aviation Safety Group
RECs	Regional Economic Communities
RSOOs	Regional Safety Oversight Organizations
SDGs	Sustainable Development Goals
SSCs	Significant Safety Concerns
SWOT	Strength, Weakness, Opportunities, Threats
TEUs	20 feet equivalent units
TRIE	Convention on Interstate Transport of Goods by Road
UAR	Union of African Railways
UNECA	United Nations Economic Commission for Africa
UNTACDA	United Nations Transport and Communications Decade in Africa
USAOP	ICAO's Universal Safety Oversight Audit Programme
VHF	Very High Frequency
VOR	VHF Omni Range (equipment)
WASAF	Western and Central Africa Regional Office of ICAO
WTO	World Trade Organisation

Foreword

This report was prepared by a team of modal experts under the guidance of the project team leader working in close coordination with the AUC staff in charge of supervising and monitoring the project.

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0. Executive Summary

0.1 Introduction

The transport policy framework outlines new transport directions, provides policy guidance for the African Continent and lays the basis for reforms over the coming decade and beyond. The new policy framework will lead towards an integrated, sustainable and harmonious/inclusive transport system, cognisant of the requirements of the African continent's international / regional connectivity and the welfare of its citizens.

0.2 Vision

In line with AUC Agenda 2063 vision for Africa and the PIDA vision, and in order to comply with all these challenges, the long-term transport vision for Africa should be:

To provide sustainable, reliable, modern, efficient, cost effective and fully integrated transport infrastructure and freight and passenger transport services that:

- *Support continental and regional integration;*
- *Meet future transport demand and support African business through easy and seamless logistic systems;*
- *Provide a safe and secure transport system; whilst*
- *Minimizing the impact on environment.*

0.3 Key Policy Areas

Africa's economic infrastructure gap remains a key constraint to development and provision of basic services. The lack of inter-connectivity hinders countries from linking up and benefiting from national, regional and global opportunities. Among the key policy measures needed to address Africa's infrastructure challenges are developing infrastructure and related services as well as predictable/transparent legal systems. This involves the full realisation of PIDA. The following cross cutting policy objectives have been identified:

- Improve Regional and Continental connectivity;
- Develop a sustainable transport system that is safe and friendly to the environment;
- Improve Governance of the transport sector; and
- Establish the best institutional frameworks at national, regional and continental levels in order to improve the transport sector efficiency.

The following modal transport areas have been identified:

- Road infrastructure;
- Road transport services and the trucking industry;
- Rail transport;
- Maritime transport;
- Air transport;
- Urban Transport; and
- Multimodal transport.

The cross cutting and modal policies are elaborated in sections 0.4 and 0.5 below respectively.

0.4 Cross cutting policies

0.4.1 Improvement of Regional and Continental connectivity

Recommended Policy Measures to improve Regional Connectivity

- The Trans African Highway (TAH) should be fully paved;
- REC's and member states should implement harmonised and approved design, performance, and safety standards for the TAH;
- All African capitals should be linked to the paved network;
- Up-date and implement the recommended activities for the 24 PIDA-PAP for the transport sector;
- Review, update and strengthen the implementing arrangements for PIDA (institutional Architecture for Infrastructure Development in Africa – IAIDA)) in order that its recommendations are fully implemented in a timely manner;
- Implement the institutional reforms recommended by PIDA;
- Corridor Management Institutions (CMI) should be established or strengthened in order to improve efficiencies in transport and reduce logistics costs, and therefore member states and REC's need to adopt strengthening measures, particularly as regard to legal status and to harmonise these;
- The establishment of SMART corridors should be supported, and relevant member states and REC's need to implement the full range of measures in pilot corridors, and report to the AUC on progress and impacts;
- Hub port capable of accommodating large vessel sizes and which will be linked to landlocked countries by efficient land transport systems to improve regional connectivity and reduce logistic costs should be identified in each region. For this RECs and member States should engage with major shipping lines in order to identify the best location for these hub ports; and
- The technical characteristics of road infrastructure that have been approved for the THA should be implemented along the Corridors, in order to establish a homogeneous African road transport network, in terms of technical characteristics, by passes of towns and villages, climbing lanes on hills, and rest stops etc.

0.4.2 Recommended Policy Measures for Sustainable Transport

- Although Africa, at present contributes less than 5% of global carbon emissions, the continent should start to contribute to the world global efforts to improve sustainable transport, particularly in urban areas where a focus on public transport system development can assist to brake proliferation of car usage;
- The use of fossil fuel in the transport sector should be reduced by:
 - Using railways on medium and long distances and inland water transport, when available, for long distance transport and developing and encouraging multimodal transport;
 - Increasing the fuel efficiency of transport services through electric railway systems, and fuel-efficient trucks.

- Transport infrastructures and transport services should move towards a self-financing basis with observance of modal safety requirements;
- Global efforts to achieve a reduction of 60% in Greenhouse Gases by 2050 in the transport sector should be supported in conformance with relevant SDG's;
- Transport charges and taxes should be restructured over the longer term so that each mode of transports pays the full costs of its impact on the environment;
- African States should implement the approved technical characteristic in road infrastructure in order to improve safety, reduce pollution and the impact of road transport services on the environment;
- The AUC should consider policies for the implementation of the transport infrastructure, taking into consideration future climate change problems challenges, such as the forecast rise in mean sea level; and
- Urban Transport polices should be developed on a sustainable basis.

0.4.3 Recommended Policy Measures for Transport Planning

- Planning techniques, methodologies and systems should be harmonized among RECs and among Member States within the RECs;
- All modes of transport should be involved when planning the national development of the transport sector;
- Multimodal transport should be promoted in order to address reducing transport costs;
- Member states should give priority to regional transport projects over national project when these regional projects improve both national and regional transport efficiency and reduce transport costs; and
- Member states and REC's need to be fully aware of the expected growth in transport demand and of the need to ensure that transport infrastructure capacity will satisfy future transport demand.

0.4.4 Recommended Policy Measures for Transport Management and Operations

- Member states should adopt sustainable maintenance programmes of existing transport infrastructure, eliminating the requirement for rehabilitation;
- Routine and periodic maintenance of transport infrastructures should be financed by transport users;
- Member States should be urged to ensure fair competition among modes (taxation, regulatory policies) and eliminate tariff control;
- Member states should improve the managerial and technical capacity of staff involved in the transport sector, and the AU will approach development partners for support to this end;
- REC's should bring forward measures to harmonize the conditions of entry in the transport sector, in terms of human capacity, qualifications and competence of transport companies. And characteristics of transport equipment;
- REC's and member States should ensure transport efficiency by eliminating all abnormal practices;
- All member states should enforce traffic laws and eliminate overloading;

- All member states should maximise the use of the private sector for the maintenance and operation of transport infrastructure, for the management of transport services, and for the maintenance of road corridors through tolling;
- Member states ought to develop the use of ITS in order to provide transport efficiencies and lower costs on corridors; and
- Member states should improve transport safety and security by implementing and enforcing appropriate policies and regulations.

0.4.5 Policy Measures for Transport Sector Data and Monitoring

- REC's should establish independent transport observatories to monitor the efficiency of the transit traffic, in particular along the corridors and to ensure the implementation of the approved and relevant transport policies;
- REC's should foster the establishment of independent and efficient monitoring systems at national levels (organ regulators); and
- REC's should place the concept of transport sector data management at the heart of sound policy development, including the generation of baseline data and targets for key indicators.

0.4.6 Recommended Policy Measures for Transport Sector Financing

- Member states should develop enabling legal and regulatory frameworks that support creation of PPPs for development, financing, management and operation of major transport infrastructure projects;
- For the road sector, the member states must ensure that financing of routine and periodic maintenance is covered by road user charges. Money collected should be channelled to road funds and used exclusively for road maintenance on performance basis and eliminate the need for rehabilitation of the road network;
- For freight transport, users charges should cover in full the cost of using the infrastructure, as well as the indirect costs, such as the impact on the environment;
- Given the limitations on funds collected by transport user charges, transport infrastructure projects should be financed by specifically dedicated investment budgets with possible financial assistance from IFI or call to the private sector, whereas the funds collected by user charges be primary dedicated to maintenance needs of the existing transport infrastructure; and
- Member states should develop enabling legal, regulatory and institutional frameworks for private sector involvement in development, financing, management and operation of transport infrastructure projects.

0.4.7 Recommended Institutional Policy Measures

- REC's should improve the transfer of knowledge and experience among themselves on institutional, economic and social aspects, for example on establishing OSBP's or preparing PPP programs for corridor development on behalf of the member states;
- Institutional arrangement should be put in place, for the completion of the TAH, at continental level with the support of the REC's;

- Corridor Management Institutions should be established and the existing ones strengthened; and
- Member states in each corridor should enter into agreements (MOU) for the upgrading and maintenance of the transport infrastructures as well as to improve trade facilitation and speed up spatial development initiatives.

0.5 Modal Transport Policies

0.5.1 Recommended Policy Measures for Road Infrastructure

Connectivity

- The Trans African Highway (TAH) should be fully paved;
- REC's and member states should implement harmonised and approved design, performance, and safety standards for the TAH;
- All African capitals should be linked to the paved network;
- Axle load and size of vehicles should be harmonized and REC's should bring forward proposals to control regulations across the continent;
- Overloaded vehicles should disappear. REC's and member states should increase enforcement of axle loads through effective deployment of comprehensive weighbridge systems across the road network;
- The role of the private sector to maintain, up-grade and manage road infrastructure along the corridors with funding from tolling in order to generate revenue to be used specifically for road maintenance by the private sectors should be generalized;
- The full program of One Stop Border Posts (OSBP's) across the continent should be finalized; and
- Member states should instruct their road agencies to plan, design and implement programs of works on main corridors in respecting the approved norms and standards for the TAH.

Rural Access

- The standard of rural roads in Africa needs to be improved with a view to achieving Agenda 2063 objectives;
- Member states should bring forward comprehensive programs of rural road improvements that improve connectivity to national roads;
- Low cost alternatives for road upgrading in rural areas should be developed considering the use of innovative chemical soil stabilizers. Design guidance for low volume roads on the basis of best practice and research should be prepared and disseminated to member states; and
- Development partner should propose potential funding arrangement for improved rural roads.

Road Maintenance

- Routine and periodic maintenance strategy should be modernized in order to better protect the surface and eliminate the requirement for rehabilitation;
- Good and efficient financial tools should be developed for the financing of road maintenance;
- Member states should establish '2nd Generation' Road Funds, in which road user charges are directly collected by the road fund agency for specific and sole use on road maintenance;

- REC's should bring forward proposals for appropriate road user charge components in each region that can be agreed by member states;
- Governments of member states should allow and encourage road fund agencies to set road user charges that meet the full costs of road maintenance;
- Staff in charge of managing the road network should be correctly informed and trained;
- Materials for use by member states and road fund agencies to regularly educate and train various stakeholders to the importance of the road maintenance and the challenge associated with this activity should be prepared;
- Member states should establish permanent working groups bringing together all the stakeholders (administration, road agencies, companies, consultants; monitoring offices, laboratories, carriers, etc.) in order to seek to prioritise road maintenance and to develop such regulations needed for the maintenance of various categories of roads (urban, toll road, rural etc.);
- The use of PPP for road maintenance should be developed; Awareness of the need to develop public-private partnership (PPP) for road maintenance should be raised along with the need to implement multi-year performance contracts on national roads and on corridors; and
- Databases of road inventory and conditions to be used in planning road maintenance work should be established or strengthened in RECs and Member states.

Road Financing

- PPP and tolling mechanisms should be developed by RECs and Member states to improve corridor roads; and
- Appropriate policies and legislation for PPP projects, should be adopted in order to provide confidence for the private sector.

Road Safety

- The safety and protection for all road users should be secured through safer road infrastructure, through a combination of proper planning and safety assessment, design, building and maintenance of forgiving roads;
- The 8 pillars of the action plan for the implementation of the African Road Safety Charter should be enforced; and
- Comprehensive coverage of vehicle testing stations should be provided across the continent.

0.5.2 Recommended Policy Measures for Road Transport

Transport Services

- The establishment or strengthening of Corridor Management Institutions (CMI's) designed to promote and address all aspects of transport and transit of goods throughout a given corridor should be promoted;
- Regional trade facilitation measures should be enforced. CMI's should advocate modernization of border agencies, in particular Customs administrations, institutional reforms, foster the simplification of procedures, promote improvements in training and investment, and upgrade information technology and border crossing facilities;
- Monitoring of the performance of the corridors on a regular basis should be established. CMI's should assess the performance of the corridors on a regular basis in the three areas of:

infrastructure, quality of services, and shipment of goods, and to report on these to stakeholders and the AU;

- Priority corridors in Africa should be converted into SMART Corridors; and
- CMI's should collaborate with private sector partners for the maintenance and up-grading of roads along the corridor financed by tolls to be paid directly to private operator.

Trucking Industry

- A commitment to a liberal market for freight transport by road across the continent should be re-affirmed. At the same time, the industry needs to be better regulated in the areas of driver and vehicle quality in order to increase efficiency, and improve safety;
- Quota systems under which freight shares to international truckers are explicitly allocated, which undermines free markets and efficiencies should be eliminated;
- Axle load and size of vehicles should be harmonized and REC's should bring forward proposals to control regulations across the continent;
- Appropriate and efficient financing mechanisms for the purchase of trucks should be developed by each REC;
- The driving regulations and standards of commercial vehicles should be harmonized and more rigorous professional testing and certification should be defined; and
- Un-official roadblocks should disappear through a strict enforcement of existing regulations.

0.5.3 Recommended Policy Measures for Rail Transport

Connectivity

- All new railway lines should now be constructed to standard gauge. They should be designed for 60 Kg rail and minimum axle loads of 25 Tonne, high speeds (80 – 120 km/);
- Upgraded railway lines should move to standard gauge. Where this is not possible in the short term, measures should be taken to ensure that the track bed is capable of accommodating standard gauge in the future;
- The development of a **Pan African High Speed Rail (HSR)** network, which will connect all the major cities/capitals of the continent, is intended to be a catalyst for manufacturing, skills development, technology, research, integration and intra-African trade, investments and tourism;
- REC's should bring forward proposals for the High Speed Rail (HSR) network in their regions, and to co-ordinate with each other on linking these components of the network;
- Member states should identify specific corridor alignments for the HSR in line with network proposals and safeguard these for future development;
- Railway operators should adopt more systematic approaches to maintenance of track;
- The management of the regional rolling stock should be improved;
- By planning acquisition and renewal and introducing maintenance programs at REC level in coordination with International Financial Institutions (IFIs) and private parties;
- By considering opportunities for renting or leasing rolling stock in the short or medium term to avoid bearing high initial investment costs;
- Railway operators should improve the attractiveness of their services to freight customers through adopting tracking systems, directly contracting with road transport operators to provide a door-to-door service, to modernise marketing efforts and make sure that where

appropriate, railways are fully integrated into SMART Corridors through cargo/container tracking, Single Window technology for imports and exports, and rolling stock and driver tracking and information systems; and

- Cross-border railway operations should be improved by using best practices in term of movement of locomotives and wagons and in term of custom clearance.

Financial

- The participation of the private sector along with innovative methods to finance the rail transport sector should be increased.

Safety

- Safety regulations and certifications should be harmonized at the level of the continent, this being essential to unify the safety conditions all over the continent and reduce the human errors;
- AUR should develop Common Safety Targets (CST) to assure a short-term control of safety performances and a long-term convergence of safety performance, through the use of common ways of measuring and assessing safety performance on a macro level; and
- Independent Railway Regulators, whose role should be to regulate operators in the interests of safety and environmental protection, should be established for all railway lines.

0.5.4 Recommended Policy Measures for Waterborne Transport

Ports

- Enough port capacity and maritime logistic should be implemented to satisfy expected transport demand. West Africa, East Africa, and Southern Africa are three regions that face port capacity gaps;
- Port planning in the national transport should be integrated with the overall transport planning system to ensure the establishment of an integrated transport system and that ports are well served with link roads and railways;
- Some of the African ports should be extended in order to become regional hubs and offer adequate capacities at berths and channels to accommodate panamax and post-panamax vessels;
 - Member States within the same geographical areas should establish technical cooperation mechanisms in order to establish regional hub ports.
 - Member States should establish national or regional maritime industrial hubs for value adding, job creation and logistics cost reduction.
- The development of passenger terminals and facilities should be included in the national transport system plans.

Inland Waterways

- Navigable inland waterways transport that has been neglected and has not been given due consideration thus has deteriorated over the years should be re activated and developed;
- The potential for inland water transport to contribute as a cheap and environmentally friendly/ sustainable (and multi-modal) mode of transport in the African transport system should be recognised

- Member states and REC's should bring forward plans to foster inland water transport through the provision of appropriate infrastructure, laws and regulations (to address common navigation issues and logistics to support efficient cross-border trade (thereby promoting investment co-ordinated in terms of geographical needs, port locations, modern integrated port and handling facilities, etc.);
- Relevant member states should establish or extend maritime administrations with a view to fostering and regulating inland water transport; and
- Relevant member states should adopt boat building standards for inland water transport in order to improve safety on the water, using best practices worldwide.

Sectoral Safety, Environmental and Finance

- The implementation and the enforcement within the State jurisdictions of national and international conventions, laws and regulations on maritime safety, environment and security should be undertaken;
- The use of modern low energy and low emission IWT vessels should be fostered;
- Measure should be taken to promote the sustainable navigability of rivers and lakes;
- The unloading of ships sewage in the ports or close to the coastline should be prohibited (this is often done by international shipping lines without proper controls);
- Training programs should be developed to produce trained and duly certificated seafarers in the maritime sector in Africa;
- Fiscal policies that accommodate private finance in port and other maritime infrastructure development projects as well as multi-modal transport (IWT /rail containers) projects should be developed, adopted and implemented; and
- User contributory funds that will be earmarked and used regularly to maintain and improve port infrastructure (including dredging which is essential to current and future maritime trade) should be implemented.

0.5.5 Recommended Policy Measures for Air Transport

Safety and security

- The AFI Plan and the AFI SECFAL Plan should be embraced by all African states;
- African states should be supported in order to meet the target of 60% Effective Implementation (EI) of ICAO SARPS by 2017;
- Continued support should be provided through AFCAC, the COSCAPs and the RSOOs;
- Collaborative measures e.g. the pooling of aviation safety oversight inspectors at a regional level should be introduced;
- Donor assistance projects, e.g. the EU's AVSEC (Aviation Security), SAFIR (Satellite Navigation Services for the African Region), TRECA (Training in EGNOS GNSS in Africa) and PIDA (Programme for Infrastructure Development in Africa), the US 'Safe Skies for Africa initiative should be encouraged; and
- All African airlines should be required to successfully complete the IATA IOSA audit.

Market liberalisation and airline consolidation

- The Yamoussoukro Decision (YD) should be implemented as quickly as possible to create fully Open Skies across Africa in line with the Activity Road Map prepared by the AUC;
- All 14 African states signing the solemn declaration to implement the Yamoussoukro Decision by 31 July 2017 should ensure that all necessary national legislation is in place by this date;

- All other African states should be encouraged to join as soon as possible. In the longer-term, penalties might be introduced for any non-compliant state;
- An effective Implementing Agency and a dispute settlement mechanism should be established as soon as possible at a pan-African level, either through the AUC or AFCAC;
- The development of a financially strong airline sector should be encouraged – e.g. through mergers, partnerships and the membership of global alliances;
- The development of bilateral agreements between key countries or country blocks such as the EU, US, ASEAN, etc. and the AU or the RECs should be encouraged and extended;
- Airlines should be encouraged to introduce modern, fuel efficient and less noisy fleets; and
- State governments should be encouraged to sign the Cape Town Agreement in order to facilitate the funding of new aircraft fleets for their registered airlines.

Airport and ATM infrastructure

- The airport sector in Africa is expected to be primarily state-owned in the short to medium-term, although privatisation and public private partnerships (PPP) should be encouraged, where financially viable;
- There will be a need to modernise and to provide additional airport capacity –although this should be subject to market and financial viability and environmental sustainability;
- Airports should be encouraged to increase revenue through more appropriate charges in line with ICAO policy and though increased commercialisation;
- Increased competition in airport services e.g. ground handling, fuel supply, etc. needs to be introduced at some airports; and
- Improvements in ATM can be achieved through the harmonisation of airspace e.g. through adopting ICAO’s Aviation System Block Upgrades – ASBUs, through the use of satellite technology and through the better management of traffic flows.

Environmental sustainability

- African airlines should be encouraged to adopt environmentally sensitive practices (e.g. to reduce fuel burn) and should comply with a global emissions scheme if introduced;
- Airports should be expected to meet ‘carbon neutral’ and other pollutant targets;
- Where appropriate, special airport charges could be introduced for more noisy aircraft; and
- All airport development should be subject to a detailed environmental impact assessment, including any impacts on displaced communities.

Consumer protection

- Legislation for the protection of air passenger rights e.g. compensation for flight delays, rerouting, denied boarding and lost baggage should be introduced at a national level together with appropriate procedural mechanisms; and
- Further legislation may be necessary to protect the rights of certain passengers e.g. those with reduced mobility.

Technological change

- The African aviation sector must embrace new technology to improve efficiency, safety, security, cost-effectiveness and environmental sustainability;
- Airports should introduce bio-metric check-in, e-passports etc. in line with ICAO plans; and
- Innovative technologies such as drones should be carefully assessed and appropriate legislation should be introduced at the pan-African and national levels as required.

0.5.6 Recommended Policy Measures for Urban Transport

Urgent measures need to be taken to cope with rapid urbanization. Core policy actions comprise:

Upgrading of Public transport systems

- Design and implement mass rapid public transport projects along corridors of high demand;
- Consolidate bus networks as a component of a multimodal urban transport system;
- Identify adequate and sustainable sources of financing for urban public transport development;
- Fare policy should permit cost recovery from operators, even if concessionaire fares are also necessary;
- Consider a range of potential public transport funding sources: Fuel taxes, Vehicle registration taxes, Taxi and minibus licenses fees, Royalty fees from contracted operators, Parking fees and urban tolls, contributions from employers and commercial activities, land Value capture.
- Explore PPP options for mass transport system development.
- Work with the Paratransit sector to evolve towards more organized and integrated systems.
- Create and train specialized urban police units for urban traffic and urban transport.

Urban Roads and highways and Traffic Management

- Structure urban development by means of developing hierarchical road and highway networks;
- Design roads and highways for a wider variety of modes; not only cars and trucks, with attention to management of pedestrian flows and to access to public transport infrastructure (bus stations, bus lanes, etc.);
- Progressively develop Traffic Management measures (one- way traffic schemes, parking management, coordination of traffic signals, freight transport routes, traffic control centres...) paving the way for transport demand management;
- Consider Car use control/restraint measures, initiated firstly through parking pricing measures in dense urban areas then secondly by road pricing schemes, where appropriate;
- Study measures to limit and discipline motorcycle use in urban areas and especially in dense central areas. Encourage the use of less polluting 4-stroke and electric engines;
- Develop urban road safety measures, especially for protecting pedestrians; and
- Design Highway (and mass rapid transport) projects in consideration of Urban Development Plans.

Non-motorised transport

- Promote pedestrian facilities, considering local (low cost) solutions;
- Consider potential pedestrian movements in design highway design, including access to Public Transport terminal and bus stops; and
- Provide safe cycling facilities where possible, accompanied by sensitization actions.

0.5.7 Recommended Policy Measures for Multimodal Transport

- Continued commitment to liberalization of the transport sector as the condition to stimulate competition and enhance the role of national transport providers in Africa;
- Institutional and legal framework to harmonize governmental regulations and commercial practices regarding the profession of “multimodal transport operator” should be drafted, adopted and implemented;
- Common African minimum trading standards conditions for MTOs should be established;
- Transport infrastructure developments should be planned with increased attention to the needs of the transport industry so as to serve the national economy more effectively and to create an appropriate environment for the development of multimodal transport in Africa;
- Institutional, regulatory and operational environment for transport services providers should be fostered in order to stimulate the provision of commercially viable transport services;
- National legislation to regulate multimodal transport and to provide legal framework for the establishment and development of a private sector of local MTOs should be introduced;
- Comparative analysis to investigate to which extent a transfer of cargoes towards rail, inland waterways and short sea shipping could be beneficial for the environment should be undertaken;
- Studies to define the most sustainable combination between ports, volumes of traffic and existing land transport network and the most promising ones in line with the countries’ development plans should be undertaken; and
- National Trade and Transport Facilitation Committees (NTTFC) should be established in each Member States.

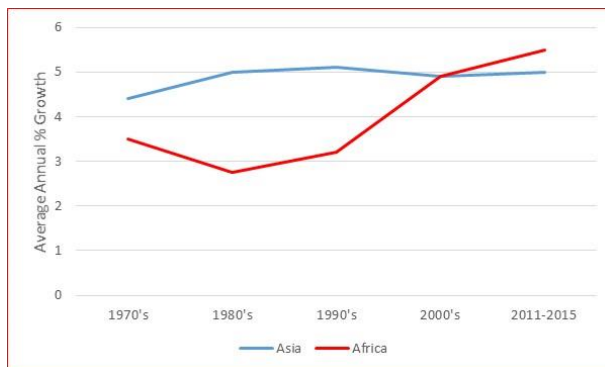
1. Introduction

The transport policy framework outlines new transport directions, provides policy guidance for the African Continent and lays the basis for reforms over the coming decade and beyond. The new policy framework will lead towards an integrated, sustainable and harmonious/inclusive transport system, cognisant of the requirements of the African continent's international / regional connectivity and the welfare of its citizens.

1.1 Important role of the transport sector for the economic development of Africa

Africa's economy is growing at the fastest rate over the past 50 years, and has recently overtaken Asia in terms of economic growth (Figure 1.1). Over the past decade Africa's real GDP growth rate jumped higher than the annual average of 5.7%, twice the pace of the 1980s and 1990s¹. Sub-Saharan Africa now has seven of the world's ten fastest-growing economies (Figure 1.2). Even though Africa felt the impact of the recent global financial and economic crisis, it was the first to begin its recovery, with an average growth rate of 2-3 % per year while some developed economies are experiencing negative growth. The resilience of the African economy, despite the impact of the global financial and economic crisis, attests to the sound and durable macroeconomic policies.

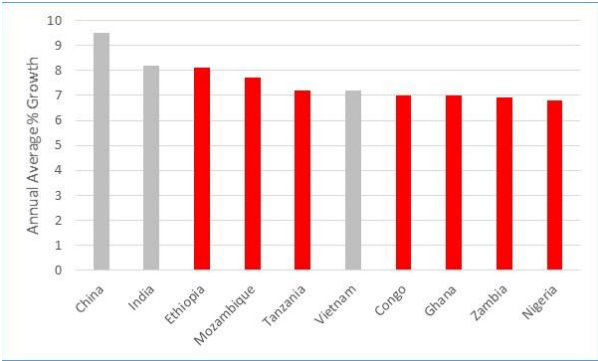
Figure 1 Continental GDP Growth Rates



Source: Reflecting on the Ten Years

¹ McKinsey Global Institute

Figure 2 GDP Growth 2011



Overall, Africa itself is inspiring change through comprehensive political and socio-economic reforms driven by the shared values of ownership, leadership and partnerships, based on the AU vision of:

“An integrated, forward-looking, prosperous, dynamic and peaceful Africa, representing a dynamic force in global arena”.

Making significant progress in governance policies has led to sound macro-economic performance. Democratic, just and accountable governance is pivotal to the attainment of Africa’s development effectiveness agenda, including the critical role of African State and non-State actors.

Africa’s collective GDP is projected to reach US\$ 2.6 trillion² by 2020. The policy environment, coupled with ‘doing business’ indicators in Africa, shows rapid change on the continent. The rate of investment in the continent is one of the most attractive globally, signifying that Africa is ready for business. Investment opportunities are expanding in fast-growing sectors such as telecommunications, banking, agriculture, infrastructure, energy and consumer goods with consumer spending forecast to reach US\$ 1.4 trillion in 2020. This is a great potential for lasting growth, wealth creation and prosperity on the continent. The opportunities include the estimate of 1.1 billion Africans of working age in 2040, a very young and active population, while 128 million African households will have discretionary income in 2020, with 50% of Africans living in cities by 2030.

These opportunities need to be turned into growth and development, whilst challenges still need to be overcome. Economic policies have not created enough jobs, especially for Africa’s fast-growing urban youth. Positive average growth rates on the continent need to be translated into inclusive growth and poverty reduction. Much still needs to be done in modernizing public sector for better service delivery, promoting intra-regional trade and investment, domestic resource mobilization, value-addition for raw materials, and developing and effectively utilizing human and institutional capacities, particularly for public policy design and implementation.

Transport enables economic growth and job creation. There is no doubt that improved and transformed transport infrastructure and services are required to support economic development, reduce poverty, facilitate trade, reduce the costs of imports, make exports more competitive and above all unite the continent in line with the AU’s aspiration of:

“A prosperous Africa based on inclusive growth and sustainable development”

In order to address the infrastructure deficit, the AUC commissioned the Programme for Infrastructure Development in Africa (PIDA) in July 2010. PIDA provides, under one coherent programme, existing or

² *Lions on the Move: the progress and potential of African economies*, McKinsey Global Institute.

previous continental infrastructure initiatives such as the NEPAD Short Term Action Plan, the NEPAD Medium to Long Term Strategic Framework and the AU Infrastructure Master Plans.

PIDA assumed that the average economic growth rate for African countries will be 6% a year between 2010 and 2040, driven by a surging population, increasing levels of education and technology absorption. This growth implies that, over the 24 years to 2040, the GDP of African countries will multiply six-fold, and the average per capita income will rise above \$10,000 for all countries. This continuing growth and prosperity will swell the demand for infrastructure, already one of the continents greatest impediments to sustainable development.

Assuming that this growth is achieved, Africa's transport infrastructure needs are starkly apparent: transport volumes will increase 6 to 8 times, with a particularly strong increase of up to 14 times for some landlocked countries; and port throughput will rise from 265 million tons in 2009, to more than 2 billion tons in 2040. This growing infrastructure demand presents a critical challenge for Africa as it competes in global and regional trade markets that rely on just-in-time production and flexible, speedy and reliable delivery.

Improved infrastructure delivery in the transport sector is part of the solution. Fostering transport services, removal of non-tariff barriers, harmonisation of regulations, and policy integration are altogether equally required in order to ensure that AU objectives are met. Hence, the need for a policy intervention in the transport sector that sets out the leadership, targets, and the implementation arrangements for better transport in Africa, which can underpin economic development.

The future prosperity of the African continent will depend on the ability of all of its regions to remain fully and competitively integrated in the world economy; efficient transport is vital in making this happen. The Transport Policy Framework (White Paper) is a consultative document that contains the required policy initiatives. It is intended to inform discussions at a first stage of the process that brings together the AU, REC's, UNECA, the Fad and member states for preparing a co-ordinated response to the challenge of implementing a transport system that integrates the continent over the next 15 years, whereas taking into account the long term needs of the sector and the long term objectives of PIDA.

The Transport Policy Framework is premised on a wider set of guiding policy principles that the AU is committed to, encompassing economic growth, regional trade, planning and financing, impact on environment and gender, youth and disabled persons and serves as a foundation for the harmonious development of the policy within the sector. These guiding policy principles are summarized in annex 1.

1.2 The challenges facing the transport sector

1.2.1 Existing Challenges

Road transport is the dominant mode in Africa. Roads carry 80% to 90% of inter-urban and inter-state goods traffic and close to 100% of passenger traffic. Despite its important role in the daily life, Africa has just over two (2) million kilometres of roads of all types and standards. It certainly remains the least connected continent. More than half the road networks are in poor condition, largely due to insufficient funding for road maintenance and from widespread overloading of trucks. Except in Southern Africa, the trucking industry in Africa is composed of a large number of very small operators, who rarely own and operate more than a few trucks. Except for the fleets owned and operated by multinational companies, trucking fleets are characterised by old, inefficient, unsafe, and polluting vehicles. Africa has sixteen (16) landlocked countries whose direct access to the sea ranges from a distance of 220 km for Swaziland to 1,735 km for Chad. Landlocked countries are seriously disadvantaged as their shippers support very high transport costs owing to low traffic volumes along

the Corridors but also to numerous abnormal practices and the limited use of modern technology. Road transport regulatory policies play a role in keeping transport prices high in Africa. It is important to develop and improve the condition of the road network, as well as to modernise the trucking fleets and to improve road transport services along the corridors.

For all modes of transport but in particular for road, Africa remains the continent with the largest number of accidents per unit of traffic and the improvement of the poor transport safety is one of the major challenges of the sector. A transport safety culture would need to be established and the African Road Safety charts need to be implemented.

Railway Transport: despite being cheaper on long distance transport, much less polluting, more secure and consuming less fossil fuel (per tonne-km) than the road sector, rail traffic in Africa is declining. This is partly due to the fact that half of the railway lines are in poor condition with different network characteristics (gauge, clearance, axle load, and signalling and communication systems) and use old technologies. They face a shortage of rolling stock (locomotives and wagons) and use old locomotives, with high maintenance costs, and high fuel consumption and consequent low productivity. The management is often inefficient and the operating concessions have not usually brought about efficiency, increased traffic or increased investment. These problems should be resolved and efficient rail transport services developed in Africa.

Waterborne (Maritime transport) remains the dominant mode in international trade, carrying 80% of the global merchandise trade. Intercontinental and regional maritime traffic is done by international shipping lines. The development of a maritime transportation system is a key enabler and catalyst for the competitiveness, socio-economic development and integration of the continent and thus should be viewed as an essential and strategic area of economic consideration in particular for securing enough capacity to satisfy the expected regional traffic. **Port infrastructure** in Africa has not been upgraded at the same pace as vessel sizes and the growth of cargo volumes handled at these ports. Therefore, this causes inefficiency and lengthy delays in movement of maritime traffic that significantly increases the cost of doing business across the continent. Future port transport demand of coastal and landlocked countries would require to substantially increase port capacities in the next ten years. In order to optimize efficiency and reduce port costs the development of the African ports should be planned at regional levels. The **Inland waterways transport** mode is underutilized in Africa despite the fact that it is an excellent way of opening up remote areas. The development and exploitation of inland waterways has been slow over the past two decades, at a time when its importance in other part of the world has increased. Efficient Maritime transport system should be implemented and modern port developed in order to improve the competitiveness of African production in the world. Inland waterways transport should be modernized.

Roads, and railways, that link a number of countries with ports have been designated as *corridors* with the objective of providing a coherent transport service across and through states that can allow for more efficient import and export and a growing inter-country trade. Corridors now provide both physical and conceptual building blocks on which Africa's transport system must grow.

Over the past two decades, these transport corridors have gained particular attention with increased efforts toward regional integration in Africa and elsewhere. African Union Commission (AUC) programs such as NEPAD and PIDA and those implemented by the Regional Economic Communities (RECs) all place priority on **enhancing interconnectivity and facilitating trade** by focusing on transport corridors as facilitators of integration and spatial development on the continent. The concept of Smart Corridors has been identified - requiring improvements to trade facilitation policies, along with harmonized up-grading of all the transport modes along the corridor.

Africa's **air transport sector** is the least developed but one of the fastest growing in the world, it currently only represents some 4.5 % of the world's aviation. Airline route networks in Africa are underdeveloped and airfares are comparatively high. In many cases, airport and ATM (air traffic management) infrastructure in Africa is undeveloped and un-modernised and is not suitable for the expected growth in air travel over the next 40 years. Significant investment will be required in new airport and ATM infrastructure and in airline fleets. To modernize their fleet, the signatories of the Cape Town convention, could benefit of the specific advantage provided by the convention, to purchase air fleet equipment. A key factor determining the level and the future growth of continental air traffic in Africa is the extent of airline market liberalisation. Whilst, in principle, African airlines can freely introduce new routes and services frequencies and set their own tariffs, this is still largely governed by the bilateral air service agreements between countries. Although under the Yamoussoukro Decision, 44 African signatory states are required to allow free market access in terms of airline seat capacity, service frequency and tariffs to all registered African airlines, restrictions still apply in too many circumstances. As a result, route networks are often undeveloped and there is a lack of market competition leading to high fares.

Urban Transport: There is rapidly growing urbanization: urban areas of Africa comprised about 414 million inhabitants in 2011. By 2030, this number is expected to rise to almost 750 million and by 2050, to over 1.2 billion. The annual urban population growth rate of Africa is forecast at by far the highest in the World, at over 3.0 % p.a. between 2011 and 2030. There are some very large metropolitan areas (Cairo, Lagos, and Kinshasa, Gauteng) with a poor Public Transport supply, although national efforts tend to be focused in these cities. On the other hand, second sized cities (of less than 1 million inhabitants) tend to be kept out the priorities although the impacts of adapted policies focused on these cities could be very interesting for the future. In addition, urban city limits tend to be crossed by existing mobility practices (which take place on a metropolitan scale). Mobility levels clearly vary according to context. A small but significant part of the population does not travel, being constrained by the poverty trap and social practices of women. The observed importance of walking in urban mobility (a share of 40% in some cities can reach 70% or 80% of trips in many other Sub-Saharan cities) can be viewed as a consequence of the poverty trap and rural influences.

Multimodal services are not developed in Africa whilst they are growing rapidly in the rest of world. A number of regulatory and other issues hamper the development of multimodal transport, which represents only a very small portion of African regional land transport traffic. The development of multimodal transport should be encouraged as this would result in the best use of land transport modes taking into consideration their costs but also their impact on environment and on transport safety and improving transport sustainability.

International financial institutions such as the Fad have financed the development/modernisation of hundreds of kilometres of roads along the corridors. Modern and efficient corridor management institutions such as the Abidjan-Lagos Corridor Organization (ALCO) have been established and play an important role to improve the efficiency of the traffic along this corridor. Many countries have established single windows systems and COMESA has designed its own ITS systems, COMESA Virtual Trade facilitation system (CVTFS), which is presently tested along the Northern corridor.

Despite all these efforts the transport efficiency along the corridors is still low and the World Bank has reported that the poor state of infrastructure in many parts of Africa reduced national economic growth by two percentage points every year and cut business productivity by as much as 40%, making Africa – in spite of its enormous mineral and other natural resources – the region with the lowest productivity levels in the world.

1.2.2 New Challenges

All these problems need to be resolved in the year to come but it should be noted that African Transport is at a crossroads. Old challenges remain but new have come. *Oil* will become scarcer in future decades, sourced increasingly from uncertain supplies. If African States do not address this oil dependence, people's ability to travel – and the overall economic security could be severely impacted with dire consequences on inflation, trade balance and the overall competitiveness of the African economy.

One of the new challenges is how best to adapt to global climate change. The two Goals of the African Union Strategy on Climate Change of direct relevance to Transport³ are:

- Goal 27: Strengthen the climate resilience climate change in coastal areas; and
- Goal 28: Support Member States to develop appropriate policies in support of economical and climate resilient transport systems.

The first AU Goal of relevance is applicable to the maritime sector and to urban areas in coastal areas. Action 2 is pertinent: *'provide guidance in the development of a framework for the assessment of climate risks and impacts on... infrastructure...'*

The second AU goal of relevance is relevant to urban transport. Actions 1-6 are directly relevant to the urban transport policy expressed herein. The measures to develop climate-smart cities and to strengthen of the climate resilience of coastal zones in (West) Africa are similarly two components of the African Climate Business Plan⁴. Climate friendly urban transport solutions, such as Bus Rapid Transit (BRT) can assist to improve urban mobility and reduce greenhouse gas emissions.

Subsequently the late 2015 **COP 21**⁵ *'Paris Agreement'* agreed to reduce the world greenhouse gas emissions. With the goal of limiting climate change below 2°C. Overall, there is the needs to reduce emissions by 80% in order to reach this goal. While deeper cuts can be achieved in other sectors of the economy, a reduction of at least 60% of GHGs by 2050 with respect to 1990⁶ was required from the transport sector, which is a significant and still growing source of GHG's. Transport is responsible for some 20-25% of global greenhouse gas emissions making it the second biggest greenhouse gas-emitting sector, after energy. Road transport accounts for a high proportion of transport-related greenhouse gas emissions, thereby serving as a focus for efforts to target emissions reduction (particularly in urban areas) in line with the AU climate change strategy.

³ *African Union Strategy on Climate Change*, May 2104

⁴ *Accelerating Climate-Resilient and Low-Carbon Development*, World Bank, African Region 2015.

⁵ COP21 (the Conference of the Parties, referring to the countries that have signed up to the 1992 United Nations Framework Convention on Climate Change)

⁶ This would correspond to emissions cuts of around 70% below 2008 levels.

The rapid growth of urban centres, (by 2050, two-thirds of the population will live in cities) will result in a very high transport demand that should be, as far as possible, satisfied by energy efficient, non-polluting public transport systems, such as light rail systems and modern fuel efficient and non-polluting bus systems. Although the emission of GHG's is relatively low in the African continent (about 5%) it is important for every State to become part of the world effort to reduce emissions. It is also important to **take into consideration the Climate change** and resilient infrastructure and adaptation challenges. All efforts should be put in place to reduce the impact of climate changes on the infrastructure and the transport services in accordance with the AU Climate Change policies.

New technologies for vehicles and traffic management will be essential to improve transport efficiency along the corridors (setting up of smart corridors) but will also be key to lower transport emissions. Delayed action and timid introduction of new technologies could condemn the African transport industry to irreversible decline.

It is important for the transport sector to play its full role in the economic development of the African countries, in order to help **reduce migration to other continents** (2015 Valetta summit action plan). The European Commission launched an *"Emergency Trust Fund for stability and addressing root causes of irregular migration and displaced persons in Africa"*. The principal regions and countries are:

- The Sahel region and Lake Chad area: Burkina Faso, Cameroon, Chad, the Gambia, Mali, Mauritania, Niger, Nigeria and Senegal;
- The Horn of Africa: Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, Sudan, Tanzania and Uganda; and
- The North of Africa: Morocco, Algeria, Tunisia, Libya and Egypt.

The Trust Fund helps foster stability in the regions by promoting economic and equal opportunities, security and development. Relevant transport sector projects should be identified, with an emphasis on safety and security, in line with the Action Plan initiatives. A well-managed transport sector can also help to create many new jobs in the affected areas.

All of the above suggests that much needs to be done to ensure a transport system that meets Africa's emerging needs and potential, whilst resolving the existing and new challenges facing the sector. The transport policy framework encourages the development of new transport patterns according to which larger volumes of freight and greater numbers of travellers are carried jointly to their destination by the most efficient (combination of) modes. Information technology should provide for simpler and more reliable transfers. Transport users should pay for the full costs of transport in exchange for less congestion, more information, better service and more safety. Future development must rely on a number of strands:

- Improving the energy efficiency performance of vehicles across all modes. Developing and deploying sustainable fuels and propulsion systems;
- Optimising the performance of multimodal logistic chains, including by making greater use of inherently more resource-efficient modes, where other technological innovations may be insufficient (e.g. long distance freight);
- Using transport and infrastructure more efficiently through use of improved traffic management and information systems (ITS), advanced logistic and market measures such as development of a modern African railway market, removal of restrictions on cabotage, abolition of barriers to short sea shipping, undistorted pricing and fair competition among transport modes, etc.

1.3 The transport vision

The future prosperity of the African continent will depend on the ability of all of its regions to remain fully and competitively integrated in the world economy. Efficient transport is vital in making this happen. Mobility is vital for the internal market and for the quality of life of African citizens.

In line with AUC Agenda 2063 vision for Africa and the PIDA vision, and in order to comply with all these challenges, the long-term transport vision for Africa should be:

To provide sustainable, reliable, modern, efficient, cost effective and fully integrated transport infrastructure and freight and passenger transport services that:

- ***Support continental and regional integration;***
- ***Meet future transport demand and support African business through easy and seamless logistic systems;***
- ***Provide a safe and secure transport system; whilst***
- ***Being environmentally friendly.***

The foundation to achieving this vision of the AU for the transport sector rests on a conducive policy, legislative and regulatory environment, which is harmonized amongst member states to facilitate expedient transport infrastructure and service delivery. Furthermore, transport sector institutions that are appropriately staffed and resourced to support the provision of quality transport infrastructure and services perform these policies, legislation and regulatory tasks.

1.4 The Strategic objectives

This long-term vision for the African transport sector, taking into consideration the numerous challenges confronting the sector is to be attained through the achievement of the following strategic objectives, which are in line with the policies defined in Vision 2063, the UA Climate Change Strategy, the SDG's, COP21 and the Valetta Convention, etc.:

1. Reduce transport logistic costs for all modes of transport in order to foster exports and reduce the costs of imports;
2. Improve and extend the connectivity of regional corridors in order to boost continental and inter-country trade;
3. Foster safe, and secure, means of transport that protects both goods and the lives and livelihoods of people;
4. Promote transport infrastructure and services that are sustainable and friendly to the environment and communities, cognizant of wider climate change impacts and policy requirements, and which are supportive of migration policy initiatives;
5. Improve the overall governance of the sector, by developing and implementing efficient regulations allowing fair competition within and between transport modes, eliminating abnormal practices and overloading and ensuring efficient transport infrastructure maintenance systems; and

6. Improve the supply and management of energy- efficient and integrated public transport systems in urban areas.

1.5 The Policy Areas

The review of the existing transport policy documents recently prepared by the REC's or by the States and the analysis of the technical notes prepared for each mode of transport, show that each mode faces its own specific challenges though there are a number of issues that are common to all of them.

In order to attain the above-mentioned strategic objectives, and to cope with the challenges facing the sector, as described above, the transport policy paper has identified several policy areas of intervention. These are divided into cross cutting policy areas and modal transport policy areas.

The cross cutting policy areas are those that need to be addressed through a common approach for several or all modes of transport whilst the modal transport policy areas are those which address specific modal issues.

The policy analysis has identified the following cross cutting policy objectives.

- Improve Regional and Continental connectivity;
- Develop a sustainable transport system that is safe, secure and friendly to the environment;
- Improve Governance of the transport sector; and
- Establish the best institutional frameworks at national, regional and continental levels in order to improve the transport sector efficiency.

The policy analysis has identified the following modal transport areas:

- Road infrastructure;
- Road transport services and the trucking industry;
- Rail transport;
- Waterborne transport (Maritime transport, including Inland Waterways transport);
- Air transport;
- Urban Transport; and
- Multimodal transport.

The policy measures recommended to address the issues underlined in cross cutting areas are presented in chapter 2. The modal transport policy areas accompanied by the recommended policy measures are described in the Chapter 3 of this transport policy paper. Chapter 4 addresses the specific issues of multimodal transport. The key policies measures recommended for each Strategic objective have been summarized in a chapter 5.

This Transport Policy Framework (White Paper) includes a number of policy measures recommended to improve the transport sector and to respond to the huge challenges facing the sector. In order to ensure the greatest impact on the sector, the most important recommendations of this transport policy framework should be turned into policy decisions as soon as possible. A tentative list of priority policy measures that could be presented to the Head of States for approval is summarized in Annex 2.

Considering that urban population will increase rapidly and that two thirds of the African population will leave in urban areas by 2050, it is necessary to develop efficient, sustainable, resilient and non-

polluting public transport systems. Major cities are drivers for growth and job creation and are linked to major corridors within a holistic connectivity agenda.

2. Cross cutting policy areas

The policy analysis has identified the following cross cutting policy objectives:

- Improve Regional and Continental connectivity;
- Develop a sustainable transport system that is safe, secure and friendly to the environment;
- Improve Governance of the transport sector;
 - o Transport planning
 - o Transport management and operation
 - o Transport data and monitoring and
 - o Transport funding
- Establish the best legal and institutional frameworks at national, regional and continental levels in order to improve the transport sector efficiency.

2.1 Improve Regional and Continental connectivity

2.1.1 Situation Analysis

Improved connectivity between Continents, between regions, and between regions and ports is vital to reduce transport costs and foster regional, inter-regional and world trade. It is the first strategic objective of the Transport Policy Framework. Air Transport and Maritime Transport are fundamentally international, and because of this, enhanced external connectivity is related to developments in these transport modes beyond the borders of the African Continent, for instance location of major airport and container handling hub ports, pace of development of transatlantic air service agreements, introduction of shipping management systems, etc.

‘The poor connectivity is due to two basic reasons:

- The very low density of transport infrastructure in Africa (essentially roads and rails) and the poor condition of these infrastructures by lack of systematic maintenance; and
- The inefficiency of transport services along these infrastructures, in particular along the corridors.

As a result, the transaction costs in Sub-Saharan Africa are the highest in the world, as Table 2.1 shows. The lack of inter-connectivity hinders countries from linking up and benefiting from national, regional and global opportunities⁷.

Table 2.1: Transaction costs in international trade, regional averages in 2012

⁷ Vision 2063

	Documents to export	Time to Export (days)	Cost to Export (US\$ per container) ⁸	Documents to import	Time to Import (days)	Cost to Import (US\$ per container)
East Asia and Pacific	6	21	923	7	22	958
Eastern Europe and Central Asia	7	26	2,134	8	29	2,349
Latin America and Caribbean	6	17	1,268	7	19	1,612
Middle East and North Africa	6	19	1,083	8	22	1,275
OECD High Income	4	10	1,028	5	10	1,080
South Asia	8	32	1,603	9	33	1,736
Sub-Saharan Africa		31	1,990	9	37	2,567

In Western and Central Africa, and at a lesser extent in Eastern and Southern Africa; trade potential is hampered by transport services inefficiencies of several types, including port congestion, lengthy cargo processing delays, poor performance of land transit systems and numerous non-official barriers. Adverse conditions stem from transportation services, business practices, transport, customs procedures, infrastructure and poor governance.

Some of the contributory factors to the problems faced along corridors can be traced to the absence of appropriate institutions able to coordinate, in a proactive manner, interventions to remove obstacles to movement. Corridors with corridor management institutions (CMI's) have sometimes shown significant improvements in facilitating dialogue between corridor stakeholders and harmonizing procedures and documentation used in transport and transit operations along the corridor, resulting in reduced transit time and cost.

The **Programme for Infrastructure Development in Africa (PIDA)**, approved by the AU in January 2012 proposed solutions to address the many issues facing the transport sector along the African Regional Transport Infrastructures (ARTIN). PIDA identifies the activities (both soft and hard) to be conducted by tranches of ten years (2010-2020; 2020-2030 and 2030-2040). Presently, the AUC, the NPCA, the RECs and the countries are implementing the PIDA-PAP, which cover the period 2010-2020.

The overall objectives of PIDA are not only to recommend the building or modernisation of regional transport infrastructures to increase capacity and satisfy the expected transport demand but also to establish regional transport systems, through policy reforms, that will not only encourage and facilitate regional trade and the movement of goods and passengers but also to speed up the economic development of both landlocked and transit countries and contribute to poverty reduction.

The Transport section of the PIDA-PAP contains 24 programs. The majority of these programs are aimed at increasing (or building) transport infrastructures capacities to satisfy the expected traffic demand, in 2020 and to increase transport efficiency along the key corridors. Each program of the PIDA-PAP recommends to start with the conduct of studies and analysis to define the best technical

Source UNECA 2013

and economical solutions to fill the identified gaps and to improve the overall efficiency of regional transport and then identifies and costs the required investments

With the expected transport traffic growth, PIDA estimated the investment needs for ARTIN as follows:

Table 2.2: Estimated Costs of the PIDA Regional and Continental Programme for ARTIN (US\$ billion)

Region Total	Connectivity			Filling Gaps				Modernization			
	TAH	Inter-Capital	Ports	Road	Rail	Airports	Road	Rail	Air	OSBP	
North Africa	1.4	-	-	0.8	1.0**	0.6	1.7*	4.1**	-	0.2	9.8
West Africa	1.9	-	12.0	4.6	9.0	1.4	4.1*	0.6	-	0.5	34.1
Central Africa	2.0	1.0	7.6	0.8	5.2	0.7	2.8*	0.2	-	0.3	20.6
Eastern Africa	0.6	-	15.4	2.9	9.0	0.8	4.6*	0.4	-	0.5	34.2
Southern Africa	0.2	-	14.0	3.1	12.0	1.0	5.9*	1.5	-	0.5	38.2
Continental	-	-	-	-	-	-	0.1*	-	0.5	-	0.6
Total	6.1	1.0	49.0	12.2	36.2	4.5	19.2	6.8	0.5	2.0	137.5

*Including smart corridor development, with smart corridor technology models developed at the continental level and smart corridor implementations at the regional level.

** Not counting high-speed rail construction.

Note: Road modernization includes bypasses and port access roads, which also add capacity. All numbers are estimate, which should be taken as approximate with +/- 20% accuracy

As of early 2016, only some transport investment projects are being implemented or studied, in addition, only a few of the recommended studies or analyses have been conducted either by the AUC, the NPCA or the REC's. The overall objectives of the PIDA in term of improving regional transport connectivity have not yet been reached.

Among the many analyses and actions recommended by the PIDA some are particularly important to improve efficiency of the regional transport system and would need to be conducted rapidly such as:

- The identification of hub ports that could be linked to landlocked countries by efficient land transport systems to improve regional inter connectivity and reduce logistic costs. The dissemination and implementation of the adopted characteristics of the roads infrastructure along the corridors so as to establish a homogeneous African road transport

network (technical characteristics, by passes of towns and villages, climbing lanes on hills, rest stops etc.).

- The identification of hub airports and the liberalization of air transport (as required by the Yamoussoukro decision) to reduce air transport costs and improve frequencies, and
- The implementation of smart corridors.

The PIDA-PAP is now 4 years old and it might be necessary to reassess the objectives and activities recommended for each program and, when necessary to propose, and fix new objectives and activities. It is also time to start preparing the second phase of PIDA for the period 2020-2030.

The implementation process is grounded in the Institutional Architecture for Infrastructure Development in Africa (IAIDA) with a general aim to reinforce institutional capacities and to create conducive environment for resource mobilization. The architecture consists of structures for decision-making and implementation. The responsibility for devising master plans and identifying integrative regional infrastructure lies at the regional and national levels. The responsibility for updating PIDA rests with the NPCA in close cooperation with the REC's and their specialized institutions. Considering the limited activities achieved so far in the implementation of the PIDA-PAP transport programs, it will be useful to reassess the implementing structure approved by the Head of States at the same time that the PIDA is updated and extended.

2.1.2 Key Issues on Regional Connectivity

- a) Slow implementation of PIDA-PAP. Many of the ARTIN road and rail sections to be built or modernized to satisfy transport demand are still not built or modernized;
- b) Poor road conditions in many corridors inducing delays and high vehicle operating and maintenance costs for the trucking industry;
- c) Port congestion and excessive border crossing delays inducing high total logistics costs for landlocked shippers, including the hidden costs they support due to the delays and the logistics chain unreliability;
- d) Lack of competition within the transport market;
- e) Information on corridor trade and performance are not developed enough to pinpoint inefficiencies;
- f) Informal payments and excessive checkpoints, especially in West and Central African corridors;
- g) Lack of full implementation of trade facilitation measures along the corridors (including ports and border posts);
- h) Lack of harmonisation of policies, standards and guidelines;
- i) Lack of law enforcement capacity;
- j) Lack of compliance with international conventions; and
- k) Lack of private sector participation.

2.1.3 Recommended Policy Measures to improve Regional Connectivity

- 1) The Trans African Highway (TAH) should be fully paved;
- 2) REC's and member states should implement harmonised and approved design, performance, and safety standards for the TAH;

- 3) All African capitals should be linked to the paved network;
- 4) Up-date and implement the recommended activities for the 24 PIDA-PAP for the transport sector;
- 5) Review, update and strengthen the implementing arrangements for PIDA (institutional Architecture for Infrastructure Development in Africa –IAIDA)) in order that its recommendations are fully implemented in a timely manner;
- 6) Implement the institutional reforms recommended by PIDA;
- 7) Corridor Management Institutions (CMI) should be established or strengthened in order to improve efficiencies in transport and reduce logistics costs, and therefore member states and REC's need to adopt strengthening measures, particularly as regard to legal status and to harmonise these;
- 8) The establishment of SMART corridors should be supported, and relevant member states and REC's need to implement the full range of measures in pilot corridors, and report to the AUC on progress and impacts;
- 9) Hub ports capable of accommodating large vessel sizes and which will be linked to landlocked countries by efficient land transport systems to improve regional connectivity and reduce logistic costs should be identified in each region. For this RECs and member States should engage with major shipping lines in order to identify the best location for these hub ports; and
- 10) The technical characteristics of road infrastructure that have been approved for the THA should be implemented along the Corridors, in order to establish a homogeneous African road transport network, in terms of technical characteristics, by passes of towns and villages, climbing lanes on hills, and rest stops etc.

2.2 Develop a sustainable transport system that is safe, secure and friendly to the environment

2.2.1 Situation Analysis

Promoting means of transport infrastructure and services that are sustainable and which minimise adverse impacts on the environment and communities is one of the key new challenges facing the sector.

It is important to ensure sustainability, security and safety and reduce the impact of the transport sector on the environment. Today, the majority of transport services are powered by fossil fuel, which will become scarcer in future decades. The African continent should take steps to address this oil dependence, particularly through the increased use of renewable energy sources.

At the global level, transport is responsible for about quarter of energy related greenhouse gas (GHG) emissions. As regards Africa and other emerging and developing countries, this will become the fastest growing source of GHG's in the coming years, mainly arising from a growth in both passenger and freight transport. The transport sector has certainly and considerably contributed to the African economic growth in the past. It will continue to do so in the future, but it should be structured so that rapid growth of motorization (resulting in air pollution, road crashes and fatalities, increased GHG emissions etc.) develops in such a way that economic costs to society arising from it do not undermine the expected economic and social development outcomes.

Whilst Africa at present, contributes less than 5% of global carbon emissions, it will need to start to contribute to the world global efforts to improve sustainable transport by developing transport systems that are less polluting, safer, more secure, and consume less fossil energy.

Africa also bears the brunt of the impact of global climate change. Africa needs to address the global challenge of climate change by prioritizing adaptation in all its actions, drawing upon skills of diverse disciplines and with adequate support (affordable technology development and transfer, capacity building, financial and technical resources) to ensure implementation of actions for the survival of the most vulnerable populations, including islands states, both for sustainable development and shared prosperity.

2.2.2 Key issues on Sustainable Transport

Three UN **Sustainable Development Goals**⁹ (SDG's) linked to the AU Climate Change Strategy/COP21 are relevant for African States, which should adopt appropriate policies to achieve these goals.

The SDG'S of particular relevance to the transport sector are:

SDG

- Target 3.6: for Road sector: By 2020 halve the number of deaths and injuries on the roads; and
- Target 3.9: for Urban Transport sector (in particular): By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals **and air, water and soil pollution** and contamination.

SDG

- Target 9.1: For the Transport sector as a whole: Develop quality, reliable, sustainable and resilient infrastructure including regional and trans border infrastructure to support economic development and human well-being with a focus on affordable and equitable access to the most vulnerable persons (disabled, women and children); and.
- Target 9.4 for Urban Transport sector (in particular): By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities. This SDG GOAL applies to urban transport systems (such as bus, taxis and other motor vehicles).

SDG

- Target 11.2 for the Urban Transport sector: By 2030 provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety notably by expanding public transport with special attention to the needs of those in vulnerable situation, women, and children, persons with disabilities and older persons; and

⁹ United Nations Resolution A/RES/70/1, September 25, 2015.

Target 11.4 for the Urban Transport sector: By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to **air quality** and municipal and other waste management.

The SDG's addressed in the transport policy framework are 3.9, 9.4 and 11.2/ 11.4. SDG target 3.4 is also addressed, as a high proportion of veh-kms are recorded in urban areas, and the *mobility aspects* of SDG Target 9.1 are addressed by the introduction of modern public transport systems.

SDG Target 9.1 is addressed for each transport mode. In many countries, the total investments required to develop these modern transport infrastructure will substantially exceed their financial capacities and they would require to use innovative financing mechanisms, in particular to call on the private sector and to use local financing mechanisms, such as the pension funds.

In order to ensure the sustainability of the transport sector, and in line with the wider policy directions promulgated in the SDG's, AU Climate Change Strategy and COP21, the following issues need to be addressed:

- a) Place a greater emphasis on safer, more secure and less polluting transport modes, with a particular emphasis on road transport and urban areas;
- b) Develop methods to favour the development of transport systems that consume less fossil fuel;
- c) Encourage the use of modes that minimize negative environmental impacts and ensure better sustainability, through means of encouraging a shifting of passenger and freight transport from road to railway and inland water transport modes;
- d) Protect the transport infrastructure from climate changes; there is need for design standards to be adapted to reflect an increased frequency of flooding, and a need to anticipate expected increases in mean sea level and increased storm surges when locating coastal infrastructure.

2.2.3 Recommended Policy Measures for Sustainable Transport

- 1) Although Africa, at present contributes less than 5% of global carbon emissions, the continent should start to contribute to the world global efforts to improve sustainable transport particularly in urban areas where a focus on public transport system development can assist to brake proliferation of car usage;
- 2) The use of fossil fuel in the transport sector should be reduced by:
 - Using railways on medium and long distances and inland water transport, when available, for long distance transport and developing and encouraging multimodal transport;
 - Increasing the fuel efficiency of transport services and reducing the carbon footprint through the introduction of electric powered railway systems, and fuel-efficient trucks.
- 3) Transport infrastructures and transport services should move towards a self-financing basis with due observance of modal safety requirements;
- 4) Global efforts to achieve a reduction of 60% in Greenhouse Gases by 2050 in the transport sector should be supported in conformance with relevant SDG's and in particular reduction of urban transport emission levels can lead to enhanced air quality in African cities;

- 5) Transport charges and taxes should be restructured over the longer term so that each mode of transports pays the full costs of its impact on the environment;
- 6) African States should implement the approved technical characteristic in road infrastructure in order to improve safety, reduce pollution and the impact of road transport services on the environment;
- 7) The AUC should consider policies for the implementation of the transport infrastructure, taking into consideration future climate changes challenges, such as the forecast rise in mean sea level; and
- 8) Urban Transport polices should be developed on a sustainable basis.

2.3 Improve Governance of the transport sector

Transport sector management and good governance affect the various phases of the development and management of the transport sector. It consists of:

- Transport Planning;
- Transport management and operation;
- Transport data management and monitoring; and
- Transport funding.

2.3.1 Transport planning

2.3.1.1 Situation Analysis

Planning of transport projects is not always conducted in a rational way in all member states. As a result the planning of transport infrastructures is often not coordinated and harmonized. Often rail and inland waterway transport suffer from inadequate investment and tax policies that promote road transport over the other modes. Railways and inland waterway are typically short of investment and operating capital even where rail concessions have been put in place. Road transport also benefits from lax enforcement of maximum load regulations (leading to more road deterioration), while railways enforce load limits.

Developing an efficient transport system means using the most preferred transport mode according to the current and expected circumstances (and therefore not biased towards any given mode). The target should be not going towards complete competitiveness between the different modes, but going towards using the most effective transport mode and moving towards the integration of more than one mode when it creates better, efficient, and cost effective transport services. In principle, no mode should be prioritised above another, and the mix of modes should be determined by the nature (purpose, type, volume and distance) of transport demand and the comparative advantages of each mode under specific circumstances.

At regional level there is an absence of clear responsibilities between the continental and regional organizations with many overlaps resulting in un-coordinated studies and lack of coordination and harmonization in policy decisions. As a result the development programs of the RECS are prepared with different planning methodologies and approaches resulting in different level of analyses and proposals for new projects. This results in heterogeneous masters plans for road and rail and the absence of master plans for ports and airports.

2.3.1.2 Key Issues on Transport Planning

- a) At national level, the planning of transport infrastructure investments are not harmonized and coordinated; and
- b) At regional level the lack of harmonization of planning techniques, results in different level of analysis and proposals for new projects leading to heterogeneous masters plans for road and rail and the absence of masters plans for ports and airports.

2.3.1.3 Recommended Policy Measures for Transport Planning

- 1) Planning techniques, methodologies and systems should be harmonized among RECs and among Member States within the RECs;
- 2) All modes of transport should be involved when planning the national development of the transport sector;
- 3) Multimodal transport should be promoted in order to address reducing transport costs;
- 4) Member states should give priority to regional transport projects over national project when these regional projects improve both national and regional transport efficiency and reduce transport costs; and
- 5) Member states and REC's need to be fully aware of the expected growth in transport demand and of the need to ensure that transport infrastructure capacity will satisfy future transport demand.

2.3.2 Transport Management and Operation

2.3.2.1 Situation Analysis

The problems of governance are particularly important in the management and operation of the transport sector and substantial efficiency improvement could be made by adopting and implementing the right policy decisions at national and regional levels.

In many countries and along key corridors, the costs of transport are substantially increased by:

- Inappropriate regulations (such as unequal taxation system for the different modes of transport, unfair entry in the sector and strong protection mechanisms, creating monopoly or the tour de role for loading the trucks in some Western African ports);
- Non-implementation of existing regulations such as the control of over load trucks; and
- Practices at ports or along the roads that lead to inefficiencies.

2.3.2.2 Key Issues on Transport Management and Operation

- a) Owing to a lack of funding and inappropriate policies, the majority of the African countries are not correctly maintaining their roads and their railway lines. This lead to very costly rehabilitations of the road network and speed restrictions on railway lines reducing the competitiveness of the railway services;
- b) In many countries the entry to the transport market is hampered by regulations that limit competition and often result in monopoly situations. Entry to the market should be free and efficient intermediary systems, where transporters and customers could meet, should be put in place. The regulations of entry on the transport market should be harmonized at the level of the REC's as well as the regulations to manage and operate transport companies and to operate the transport fleet (trucks, buses, locomotives, ships, and aircraft);
- c) Competition between transports modes is not always fair. In addition, many non-formal obstacles to seamless transport exist at national and regional levels, such as un-official roadblocks along the corridors. This often results in delays and additional costs that increase the cost of transport services;

- d) Across the world, the transport sector is rapidly modernizing with the introduction of modern technology such as the implementation of intelligent transport system (ITS) and the use of efficient ICT techniques. These new techniques are not, as yet, systematically used in African countries;
- e) An important social aspect to be addressed in relation to the improvement of African transport sector development is the improvement of safety and security. The road safety is a major social problem but there are also too many train, barge and airplane accidents, resulting in numerous deaths and expensive damages. Some efforts are ongoing. For example, the African States have approved the African Road Safety Charter on road safety as well as an action plan to speed up the implementation of the recommendation of the chart. With the assistance of ICAO and AFCAC, important program to improve air transport safety are being implemented in many Africa States. But it would be important to establish a new African culture in term of transport safety and similar policies and programs should be put in place for river and maritime transports and for the railways. The AUC will take the leadership to implement programs aiming at creating this safety culture;
- f) In many countries the entry to the transport market is hampered by many **regulations** that limit competition and often result in monopoly and oligopoly situations. Entry to the market should be free and efficient intermediary systems, where transporters and customers could meet, should be put in place; and
- g) As mentioned earlier, many non-formal obstacles to seamless transport exist at national and regional levels such as un-official roadblocks along the corridors. This often results in delays and bribe to be paid substantially increasing the costs of transport services. Policies should be put in place to eliminate these obstacles.

2.3.2.3 Recommended Policy Measures for Transport Management and Operations

- 1) Member states should adopt sustainable maintenance programmes of existing transport infrastructure, eliminating the requirement for rehabilitation;
- 2) Transport users should finance routine and periodic maintenance of transport infrastructure;
- 3) Member States should be urged to ensure fair competition among modes (taxation, regulatory policies) and eliminate tariff control;
- 4) Member states should improve the managerial and technical capacity of staff involved in the transport sector, and the AU will approach development partners for support to this end;
- 5) REC's should bring forward measures to harmonize the conditions of entry in the transport sector, in terms of human capacity, qualifications and competence of transport companies. And characteristics of transport equipment;
- 6) REC's and member States should ensure transport efficiency by eliminating all abnormal practices;
- 7) All member states should enforce traffic laws and eliminate overloading;
- 8) All member states should maximise the use of the private sector for the maintenance and operation of transport infrastructure, for the management of transport services, and for the maintenance of road corridors through tolling;
- 9) Member states ought to develop the use of ITS in order to provide transport efficiencies and lower costs on corridors; and
- 10) Member states should improve transport safety and security by implementing and enforcing appropriate policies and regulations.

2.3.3 Transport Sector Data and Monitoring

2.3.3.1 Key Issues on Transport Sector Data and Monitoring

The transport system requires three basic skills sets: policy and planning, transport infrastructure and service provision and regulation and monitoring. The skills sets required are quite different and – importantly – in many African Countries these activities are not separated and there is a potential conflict of interest when the same parties set the goals, have to achieve them and oversee their achievement.

The proposal is therefore to **separate policy making from provision of transport infrastructure and services and the policy monitoring, oversight and enforcement functions. Monitoring of** the policy objectives and oversight and enforcement of policy measures should be housed in independent structures (such as regulatory bodies) in charge of monitoring the correct implementation of the transport policies.

For M&E, adequate and reliable data are necessary, not only for understanding the extent to which various interventions are contributing to the achievement of objectives set by transport sector ministries, agencies and other stakeholders; but also, for assessing how the transport sector contributes to the overall national and international development goals like the MDGs and successor SDG's.

2.3.3.2 Policy Measures for Transport Sector Data and Monitoring

- 1) REC's should establish independent transport observatories to monitor the efficiency of the transit traffic, in particular along the corridors and to ensure the implementation of the approved and relevant transport policies;
- 2) REC's should foster the establishment of independent and efficient monitoring systems at national levels (organ regulators); and
- 3) REC's should place the concept of transport sector data management at the heart of sound policy development, including the generation of baseline data and targets for key indicators.

2.3.4 Transport sector financing

2.3.4.1 Situation Analysis

Until now, most of the African states have heavily relied on traditional state budget financing for extension of existing or development of new transport infrastructure, this, complemented with support from IFI's and international development partners. Efforts to involve the private sector and/or mobilise alternative financing sources for infrastructure development have met with major challenges due to immature legal, institutional and financing frameworks.

Railway and inland waterway transport are too often under-funded leading to the deterioration of these transport modes and their decline of their share in the total transport sector.

In too many African countries, transport infrastructure investment is financed from resources that should be allocated to the maintenance. In particular, diversion of funds towards investment in road rehabilitation and road network development can lead to insufficient maintenance and a rapid deterioration of existing networks.

Often the impacts of transport services on the environment are not properly covered by the users that should fully pay the cost for the damages caused to the environment.

2.3.4.2 Key issues on Transport Sector Financing

- a) The financing requirements of Africa to develop sustainable transport infrastructure are considerable. The recent AICD country diagnostics conducted by the World Bank estimates that the continental needs to up-grade and build priority transport infrastructures will be over 20 US\$ billions per year or about 1,5% of total African GNP¹⁰. Only a few African States will be able to allocate the necessary portion of their yearly investment budget to satisfy the financial requirements for the up-grading or building of new transport infrastructure.
- b) The costs of transport infrastructure (maintenance, rehabilitation, modernisation, up-grading and extension) are very high and African countries encounter large difficulties in attempting to secure the appropriate financing, and to ensure fair competition among transport modes;
- c) It is necessary to enable full application of “user pays principle” to the freight transport, which is essentially a service directed to commercial activities.
- d) Given the limited capacity of most African states to finance the vast transport infrastructure needs throughout the continent, there is a need to move beyond pure state budget and IFI’s financing for transport infrastructure development and to consider mobilisation of alternative financing sources.
- e) Private sector financing for economically feasible projects can significantly reduce the need for public investment and move forward implementation of major transport projects without having to wait for future government budget cycles for funding.
- f) Innovative financing solutions need to be developed, through PPP approaches and Development Financing Institutions, to leverage and scale up financing for infrastructure, in particular through blending mechanisms. The principle of the mechanism is to combine grants with loans or equity from public and private financiers. The grant element is to be used in a strategic way to attract additional financing for important investments by reducing exposure to risk.
- g) Decisions to invest in new transport infrastructure should be based on the projects’ economic justification and their feasibility.

2.3.4.3 Recommended Policy Measures for Transport Sector Financing

1. Member states should develop enabling legal and regulatory frameworks that support creation of PPPs for development, financing, management and operation of major transport infrastructure projects;
2. For the road sector, the member states must ensure that financing of routine and periodic maintenance is covered by road user charges. Money collected should be channelled to road funds and used exclusively for road maintenance on performance basis and eliminate the need for rehabilitation of the road network;
3. For freight transport, users charges should cover in full the cost of using the infrastructure, as well as the indirect costs, such as the impact on the environment;
4. Given the limitations on funds collected by transport user charges, transport infrastructure projects should be financed by specifically dedicated investment budgets with possible financial assistance from IFI or call to the private sector, whereas the funds collected by user charges be primary dedicated to maintenance needs of the exiting transport infrastructure; and
5. Member states should develop enabling legal, regulatory and institutional frameworks for private sector involvement in development, financing, management and operation of transport infrastructure projects.

¹⁰ World Bank 2010 Africa’s Infrastructure, V. Foster and C. Briceño-Garmendia, developed further in AIKP.

2.4 Institutional Frameworks

2.4.1 Key issues

At regional and continental level the functioning of the existing institutional framework for the transport sector does not respond to the challenges facing the sector. The following key issues have been identified:

- a) No clear division of responsibilities between the continental, regional and national organization with many overlaps resulting in un-coordinated studies and lack of harmonization in policy decisions between States within a REC and among RECs;
- b) Development programs of the REC's are prepared with different methodologies and approaches resulting in very different level of analysis and proposals for new projects. This results in heterogeneous master plans for rail and road development and the absence of regional master plans for ports and airports;
- c) No harmonization of legal status of transport corridors;
- d) No harmonization of policies (road norms, axle load limits etc.) and strategies, particularly on corridors;
- e) No systematic exchange of information between national and regional institutions and the AU, particularly on institutional and harmonisation issues;
- f) Insufficient resources (human, technical and financial) to properly and efficiently carry out their mandates at continental, regional and national levels; and
- g) A lack of harmonization is hampering progress in the implementation by the African States of the policies approved at the AUC or REC level.

For the implementation of PIDA, the NPCA, Fad, UNECA and the REC's are institutions reporting regularly, through the AUC, to the highest levels (Ministers and Heads of State). They should be well placed to monitor the progress in harmonizing policies related to all the modes of transport

2.4.2 Recommended Institutional Policy Measures

- 1) REC's should improve the transfer of knowledge and experience among themselves on institutional, economic and social aspects, for example on establishing OSBP's and or preparing PPP's;
- 2) Institutional arrangement should be put in place, for the completion of the TAH, at continental level with the support of the REC's;
- 3) Corridor Management Institutions should be established and the existing ones strengthened; and
- 4) Member states in each corridor should enter into agreements (MOU) for the upgrading and maintenance of the transport infrastructures as well as to improve trade facilitation and speed up spatial development initiatives.

3. Modal Transport Policy Areas

Given the importance that the road transport currently assumes in Africa and the diversity of the issues arising out of this sector, the transport policy considers the road infrastructure separately from the road transport services that include both trucking industry and road services along the corridor.

3.1 Road Infrastructure

3.1.1 Situation Analysis of Road Infrastructure

Road transport is a dominant mode in Africa. Distribution is uneven and concentrated in urban areas¹¹. It carries 80% to 90% of inter-urban and inter-state freight traffic and close to 100% of passenger traffic. Despite its important role in the daily life, Africa has just over two (2) million kilometres of roads of all types and standards. Africa remains the least connected continent with a very low road density at 6.84km per 100km² which is about half of that of Latin America at 12km/100km² and a third of that of Asia at 18km/100km². The length of paved network in good condition is about 30% of the total network. The distribution of that network by regions indicates a large disparity in quantity and quality among the regions of Africa.

Over the last ten years, road infrastructure has been receiving more investment than the other modes with new construction and rehabilitation projects in all regions. Northern African countries and South Africa have succeeded in keeping their infrastructure in good condition. However, the major road corridors linking land-locked countries to the coast have not improved from their low levels of efficiency, despite improvement projects in all REC's. They are still affected by poor road conditions, multiple roadblocks and lengthy border crossing times. In some areas modern coastal road corridors are only now being developed

The systematic overloading of trucks, leading to further pavement deterioration, exacerbates poor road maintenance regimes. On average, less than half of the resources needed for maintenance are allocated.

Routine and periodic maintenance are often not executed on time leading to the degradation of the road surface, which allow water to infiltrate in the base and sub base creating avoidable damage. This leads to costly rehabilitation work programs in the many African states.

It is important that Member States implement efficient maintenance strategy allowing systematic routine and periodic work in order to ensure a good and sustainable maintenance of the surface and avoid the extension of base and sub base damages.

Among the potential strategies it should be noted that recent experiences in some African States (Chad, Mozambique, and Senegal) to implement performance contracts for routine and periodic maintenance are showing good results, with the roads under this type of contract being kept in good condition. The advantages and disadvantages of this method of contracting maintenance need to be carefully analysed before being generalized on the African continent.

¹¹ Vision 2063

Access roads to rural areas are often in poor condition. Improved access within rural areas and to national road networks is critical to the economic and social development of rural Africa. Transport costs can be drastically reduced by paving appropriate rural roads leading to increased agricultural production and improvements in livelihoods. However, the costs of paving roads to conventional standards are often not justified economically, owing to low traffic volumes. Lower cost alternatives to conventional paving are required suited to low volume roads and the local environment.

Road safety remains a genuine concern for Africa. Whilst the international community is committed to taking sound initiatives, concrete implementation on the ground is needed in order to improve the situation.

According to the United Nations Group for cooperation in matters of road safety, 1.2 million deaths are registered annually in the world. 28 deaths per 100,000 inhabitants occur in Africa with the majority of the victims being pedestrians and cyclists and the most affected segment of the population being the young. In Africa road accidents are the second cause of fatalities in the age group between 5 and 44 years. The cost of road accidents in many countries can reach 1% to 1.5 % of GNP representing, in some cases, more than the sum received as development aid. In Africa, the amount is estimated at USD 10 billion, close to 2% of GNP.

One specific target of the Sustainable Development Goals (target 3.6) is addressing road safety with the objective to halve the number of deaths and injuries on the roads by 2020.

The AU Assembly approved the African Road Safety Charter, as well as an action plan to speed up the recommendation of the charter, in January 2016. The action plan is comprised of the following clusters:

- Establishing legally mandated national Road Safety Lead Agencies;
- Preparing national road safety strategies with clear priorities, responsibilities and feasible targets;
- Implementing Road Safety Data Management Systems;
- Ensuring safer roads and mobility;
- Having safer vehicles;
- Encouraging safer road users' behaviour;
- Strengthening the post-crash care; and
- Increasing road safety financing.

In order to reach this SDG target, it is important to implement this action plan very rapidly.

3.1.2 Key Issues on Road Infrastructure

- a) **The lack of infrastructure:** Africa has a low road access rate (34% compared to 50% for the other geographical regions). Sub-Saharan Africa appears to be one of the least competitive regions in the developing world, and the lack of infrastructure is one of the fundamental causes;
- b) **The poor condition of a major part of the Trans African Highways (TAH) and the corridors:** many sections are still unpaved In Africa and required to be paved, others need to be constructed or upgraded. The PIDA review of the physical state of the African Regional Transport Infrastructure Network (ARTIN) shows that a large part of the infrastructure along the 40 corridors is in poor condition, which leads to inefficient regional transport services.

Details are provided in Annex 3. The physical condition of the sections of the TAH not located on the 40 corridors is uneven. Some sections in North Africa have been paved and are in good condition. However, a very large part of the sections crossing West and Central Africa are in very poor condition with some sections unsuitable for motorized vehicles.

Some ARTIN corridors (such as the Maputo Corridor) comprise modern roads, but most (such as the Abidjan-Lagos Corridor) are composed of a series of national roads with widely varying design, operation and maintenance standards combined with inefficient border crossings. There are only a few bypasses of congested urban areas;

- c) **The lack of harmonization of norms and standards along TAHs and the corridors:** Even though the third Session of the Conference of African Ministers responsible for Transport, held in Malabo, Equatorial Guinea, has adopted the Intergovernmental Agreement for harmonisation of road norms and standards in the TAH network, the implementation of this agreement is still facing many obstacles. This decision represents a great achievement toward facilitation of the transport transit within the continent;
- d) **The lack of maintenance strategies at RECs level:** Most of The RECs do not coordinate with their member states the definition of harmonize methodology of the road maintenance. UEMOA issued in 2009 a directive concerning the harmonization of maintenance strategies among its member states. The implementation of this directive remains a challenge;
- e) **The lack of efficient maintenance programmes in many countries:** In several countries routine and periodic maintenance are not done systematically and regularly. Works are often done late in a curative and not preventive purpose, resulting in a worsening of damage and a need for rehabilitation at very high additional costs;
- f) **The lack of maintenance funding:** Considering the inadequacy of the resources allocated to road network management, the requisite maintenance for keeping it in good state is often lacking whereas poor movement conditions lead to further deterioration. . On average, less than half of the resources needed for maintenance are allocated. In the majority of corridors, maintenance is the responsibility of the countries through the relevant Ministry in charge of public works. Resources are often provided by Road Funds, but in some cases funds are diverted for purposes other than strict maintenance such as rehabilitation and new construction;
- g) **The absence of harmonized axle load standards:** Axle load regulation varies from region to region. In addition to divergent regulation, implementation of existing regulations remains another challenge to road transport;
- h) **The inefficiency of overload control.** Only a few countries apply regional limits on large vehicle size and axle load. This results in substantial overloading of trucks and damage to the road infrastructure;
- i) **The inefficiency of border crossings.** This results in transit delays and transport cost increase and constitutes an obstacle to the regional integration;
- j) **Few Road Databases:** the fact that few countries have operational road databases results in poor planning for road maintenance and rehabilitation, and acts as an obstacle to road safety improvement; and
- k) There is very poor road safety.

3.1.3 Recommended Policy Measures for Road Infrastructure

- 1) The Trans African Highway (TAH) should be fully paved;
- 2) REC's and member states should implement harmonised and approved design, performance, and safety standards for the TAH;
- 3) All African capitals should be linked to the paved network;
- 4) Axle load and size of vehicles should be harmonized and REC's should bring forward proposals to control regulations across the continent;
- 5) Overloaded vehicles should disappear. REC's and member states should increase enforcement of axle loads through effective deployment of comprehensive weighbridge systems across the road network;
- 6) The role of the private sector to maintain, up-grade and manage road infrastructure along the corridors with funding from tolling in order to generate revenue to be used specifically for road maintenance by the private sectors should be generalized;
- 7) The full program of One Stop Border Posts (OSBP's) across the continent should be finalized; and
- 8) Member states should instruct their road agencies to plan, design and implement programs of works on main corridors in respecting the approved norms and standards for the TAH.

Rural Access

- 9) The standard of rural roads in Africa needs to be improved with a view to achieving Agenda 2063 objectives;
- 10) Member states should bring forward comprehensive programs of rural road improvements that improve connectivity to national roads;
- 11) Low cost alternatives for road upgrading in rural areas should be developed considering the use of innovative chemical soil stabilizers. Design guidance for low volume roads on the basis of best practice and research should be prepared and disseminated to member states.

Road Maintenance

- 12) Routine and periodic maintenance strategy should be modernized in order to better protect the surface and eliminate the requirement for rehabilitation;
- 13) Good and efficient financial tools should be developed for the financing of road maintenance;
 - Member states should establish '2nd Generation' Road Funds, in which road user charges are directly collected by the road fund agency for specific and sole use on road maintenance.
 - REC's should bring forward proposals for appropriate road user charge components in each region that can be agreed by member states.
 - Governments of member states should allow and encourage road fund agencies to set road user charges that meet the full costs of road maintenance;
- 14) Staff in charge of managing the road network should be correctly informed and trained;
 - Materials for use by member states and road fund agencies to regularly educate and train various stakeholders to the importance of the road maintenance and the challenge associated with this activity should be prepared.
 - Member states should establish permanent working groups bringing together all the stakeholders (administration, road agencies, companies, consultants; monitoring offices, laboratories, carriers, etc.) in order to seek to prioritise road maintenance and to develop such regulations needed for the maintenance of various categories of roads (urban, toll road, rural etc.);

- 15) The use of PPP for road maintenance should be developed; Awareness of the need to develop public-private partnership (PPP) for road maintenance should be raised along with the need to implement multi-year performance contracts on national roads and on corridors; and
- 16) Databases of road inventory and conditions to be used in planning road maintenance work should be established or strengthened in RECs and Member states.

Road Financing

- 17) PPP and tolling mechanisms should be developed by RECs and Member states to improve corridor roads; and
- 18) Appropriate policies and legislation for PPP projects, should be adopted in order to provide confidence for the private sector.

Road Safety

- 19) The safety and protection for all road users should be secured through safer road infrastructure, through a combination of proper planning and safety assessment, design, building and maintenance of forgiving roads;
- 20) The 8 pillars of the action plan for the implementation of the African Road Safety Charter should be enforced; and
- 21) Comprehensive coverage of vehicle testing stations should be provided across the continent.

3.2 Road Transport Services

This section deals with the issues of the road transport services along the corridor and of the trucking industry in Africa

3.2.1 Situation Analysis

Road transport services along the corridors

In Africa trade potential is hampered by high transport costs due to the inefficiencies of several types, including port congestion, lengthy cargo processing delays, and poor performance of land transit systems, more particularly road transport.

Africa has sixteen (16) landlocked countries whose direct access to the sea ranges from a distance of 220 km for Swaziland to 1,735 km for Chad. Landlocked countries are seriously disadvantaged as their shippers support a very high transport costs, representing between 30 and 50% of the total costs while this average % for the developing countries and only 7% for the developed countries.

Transit towards landlocked countries is largely by overland means and mainly by road. The conditions of road transport in Africa are not uniform. Axle load regulation varies from region to region.

In spite of divergent regulation, implementation policy implementation remains a challenge to road transport. The multitude of roadblocks that road transporters have to endure is a real constraint to the smooth operation of this mode of transport.

Corridor management efficiency is important to the competitiveness of most African economies, especially those that are landlocked. Unfortunately, only a few corridors have management

institutions. Corridor management arrangements should be designed to advocate modernization of border agencies, in particular Customs administrations. It has been realized that corridors with corridor management institutions are usually better equipped to address challenges faced and to chart, in a proactive manner, strategies for continued improvement to their performance.

There are not enough initiatives to both monitor the performance of corridors and to eliminate the non-tariff barriers effect of the challenges faced.

Despite the approval of the Almaty Program of Action by many African countries, many Member States do not ensure that facilitation regulation effectively contribute to the main policy objective of free movement by preventing unnecessary interruptions and delays.

Trucking Industry

The prices of transporting goods in Africa are very high and constitute a challenge to economic growth and efficiency in the continent. Several studies, including those prepared by the World Bank, the West Africa Trade Hub¹² and the Worldwide Support for Trade Capacity Building (TCBoost) concluded that road transport prices in Africa are on average two to three times higher than in other regions in the world.

Except in Southern Africa, the trucking industry in the other regions of Africa is composed of a large number of very small operators, who rarely own and operate more than a few trucks. Informal sector truckers make up an estimated 90 percent of the international trucking industry in West and Central Africa and small owner-operators, particularly in the informal sector, dominate the industry¹³.

Except for the fleets owned and operated by multinational companies, trucking fleets tend to be old, inefficient and polluting. The average age of trucks traveling in international corridors in West Africa is about 13 years, but statistics on the Niger fleet show a higher age (17 years¹⁴).

The acquisition of modern vehicles is difficult, particularly for the informal sector. Raising capital and getting loans are difficult, as banks will not accept the vehicle assets of the company as collateral.

Overloading is widespread, especially in West and Central Africa, and many trucks are reinforced so they can carry excessive loads¹⁵.

Regulatory Policies

Road Transport Regulatory policies play a key role in keeping transport prices high in Africa.

In West Africa for example, the ECOWAS Inter-State Road Transportation Convention (No. A/P2/82) allows pairs of member states to conclude bilateral treaties that set quotas in terms of specific

¹² See USAID/West Africa Trade Hub (2009, 2010a, and 2010b), ECOWAS (2010), Zerelli and Cook (2010) and Sirpe (2011).

¹³ Terevaninthorn and Raballand cite Southern Africa, particularly the North-South corridor (connecting the port of Durban to Zambia and other landlocked countries), as having Africa's most advanced road transport system, including regulatory regimes and logistics efficiency.

¹⁴ See Annequin and Eshun (2009) for the Ouagadougou-Tema corridor. The Niger fleet is apparently much older than most West African country fleets, although the age may be distorted as some older vehicles that are out of service are not deducted from the statistics, despite a recent change in accounting for active vehicles.

¹⁵ See Booz Allen Hamilton (2010), Appendix B. SITRASS (2007) also notes that in Niger and neighboring countries a truck with legal capacity given by the builder of 25 tons is frequently listed in its license (*carte grise*) at 30 or 32 tons and is overloaded commonly to 35 tons or more. Six-axle articulated trucks can have a legal capacity of 40-44 tons in the CEE and be rated as 51 tons capacity in ECOWAS countries.

percentages of the freight passing through a coastal country's port en route to a landlocked country to the truckers of each of the two countries. Several such bilateral treaties exist; usually dividing imported goods into "strategic" goods and non-strategic goods. Strategic goods are 100 percent allocated to the landlocked country and non-strategic goods are allocated two-thirds to the landlocked country and one-third to the coastal country. These treaties attempt to avoid perceived threats to national trucking industries by explicitly allocating freight shares for international trucking. In doing so they undermine free markets and the efficiency that accompanies them¹⁶

To implement the one third- quota system and to allocate freight by country of truck registration, a type of queuing system is often used to allocate freight to trucks registered to each country. Transporters' associations implement these queuing systems in the ports. Although freight sharing rules and the queuing systems are not applied to truckers in all ports and for all products, the combination of freight sharing and queuing practices leads to poor service and low productivity with no incentive to improve road transport efficiency and reduce prices.

Axle load regulations and enforcement is another challenge for the trucking industry's productivity and the road maintenance in most African regions.

Some states, such as Senegal and Mali, have signed bilateral agreements on the transit of goods by road, based on the TRIE (Convention on Interstate Transport of Goods by Road) regulation, but these are not yet functioning efficiently. Under this agreement the TRIE regulations are frequently not fully implemented, and industry faces a fragmented process, having to pay the guarantee twice. In most cases the truck fleet needs to be modernized to enable the attachment of customs seals and the approval of vehicles according to the Convention rules, and countries also need to work out an arrangement for the collection and distribution of the Convention guarantee funds.

3.2.2 Key Issues

Road Transport Services along the corridors

- a) Poor road condition in many corridors inducing delays and high vehicles operating and maintenance costs for the trucking industry;
- b) Port congestion and excessive border crossing delays inducing high total logistics costs for landlocked shippers, including the hidden costs they support due to the delays and the logistics chain unreliability;
- c) Lack of competition and liberalization of the transport market;
- d) Information on corridor trade and performance are not developed enough to pinpoint inefficiencies;
- e) Informal payments and excessive checkpoints;
- f) Non-implementation of trade facilitation measures along the corridors (including ports and border posts);
- g) Lack of harmonisation of policies, standards and guidelines;
- h) Lack of law enforcement capacity;
- i) Lack of compliance with international conventions;
- j) Lack of private sector participation; and
- k) Sustainable funding models are required.

¹⁶ Zerelli and Cook (2010) citing N'Guessan (2003b).

Trucking industry

- a) The road transport market needs to be liberalised in order to introduce competition and encourage the modernization of the fleet;
- b) In the countries where a queuing system exists, there are no freight exchange stocks, where truckers and freight forwarders can meet;
- c) The existing truck fleets are very old not fuel-efficient and very damaging to the environment;
- d) The financing of new trucks to modernize the fleets is not adequate, in particular for small trucking companies;
- e) The overloading is generalized causing heavy damages on the road networks;
- f) Issuing of driving licences for heavy trucks is not standardized and varies from one country to another; and
- g) The costs of road transport are substantially increased by too many abnormal practices along the roads, such as informal roadblocks.

3.2.3 Recommended Policy Measures

Transport Services

1. The establishment or strengthening of Corridor Management Institutions (CMI's) designed to promote and address all aspects of transport and transit of goods throughout a given corridor should be promoted;
2. Regional trade facilitation measures should be enforced. CMI's should advocate modernization of border agencies, in particular Customs administrations, institutional reforms, foster the simplification of procedures, promote improvements in training and investment, and upgrade information technology and border crossing facilities;
3. Monitoring of the performance of the corridors on a regular basis should be established. CMI's should assess the performance of the corridors on a regular basis in the three areas of: infrastructure, quality of services, and shipment of goods, and to report on these to stakeholders and the AU;
4. Priority corridors in Africa should be converted into SMART Corridors; and
5. CMI's should collaborate with private sector partners for the maintenance and up-grading of roads along the corridor financed by tolls to be paid directly to private operators.

Trucking Industry

1. A commitment to a liberal market for freight transport by road across the continent should be re-affirmed. At the same time, the industry needs to be better regulated in the areas of driver and vehicle quality in order to increase efficiency, and improve safety;
2. Quota systems under which freight shares to international truckers are explicitly allocated, which undermines free markets and efficiencies should be eliminated;
3. Axle load and size of vehicles should be harmonized and REC's should bring forward proposals to control regulations across the continent;
4. Appropriate and efficient financing mechanisms for the purchase of trucks should be developed by each REC;

5. The driving regulations and standards of commercial vehicles should be harmonized and more rigorous professional testing and certification should be defined; and
6. Un-official roadblocks should disappear through a strict enforcement of existing regulations.

3.3 Rail Transport

3.3.1 Situation Analysis

There are more than 1 million km of railway track across the world. However, with a length of around 89 390 km, the network of Africa represents less than 9 percent of the worldwide network. When the rail density in Europe is 60 Km of railway line for 1000 KM², it is only 3 km of track per 1000 KM² in Africa. The railway network in Africa is divided among South Africa (43.1 %), North Africa (22.3%) and the sub-Saharan Africa (34.6%). Country-wise, South Africa has the largest rail network of around 32 000 Km. A dozen of African countries such as Burundi, Comoros, Libya, Rwanda, Lesotho and Mauritius still have no connectivity via railway networks.

Due to the history of the African countries, the existing railway networks were designed to serve purely national needs so that the operation between states is seldom possible. The gauge of former British colonies is 1.067 m (Cape gauge) comprising 64% of the railway network length. The gauge of the former French colonies is 1.00 m comprising 20% of the railway network length. In addition, there are around 13,000 km of standard gauge, of 1.435m. These different gauges cause connectivity and interoperability challenges where the different networks meet.

Many structures and some of the tracks are now more than 100 years old. Over half of the railways are in poor condition¹⁷. The level and condition of rail infrastructure, in most countries outside of North Africa and South Africa, has deteriorated over the last decade. Long sections of track on most rail systems need repair or replacement.

Most African railways are confronting major infrastructure problems primarily associated with ageing track: insufficient ballast, rail wear, deteriorating earthworks and formation, decrepit structures, and rail signalling and telecommunications with obsolete equipment and lack of spare parts

Except North Africa countries and South Africa, the diesel locomotives in most of African countries are old (more than 30 years). The wagons are also old with very poor maintenance. The majority of the railway companies fleets do not have suitable wagons for current commodity needs.

Existing cross-border services are limited to only a few corridors, and railways have deteriorated in recent years due to a lack of investment, disruptions and damage caused by armed conflicts.

The cost of rehabilitating the networks is large compared with the existing traffic volumes and revenues. Even the means by which rehabilitation can be done on a sustainable basis is the central question faced by most African railways, let alone development of the network.

There are 12 railways under concession agreements. Only two of them have been renegotiated with different partners. The issues relating to inadequate funding are being resolved for certain railways as part of re-negotiated concession agreements, but major policy and implementation issues are slowing down the process. Overall, performance has been mixed. System performance has generally improved by increasing rolling stock and personnel productivity¹⁸.

¹⁷ PIDA, Phase I, Africa Transport Outlook 2040, 2011,

¹⁸ PIDA, Phase I, Africa Transport Outlook 2040, 2011.

Justifiable investments costs in railways are related to minimum levels of traffic. Costs vary greatly with regard to the type of terrain (flat, hilly or mountainous) and of other technical parameters, (such as the number of river crossings, etc.).

The analysis of these factors indicates that for haul distances greater than 500 km, the building of a new railway line can be economically feasible for traffic of 4 million tons per year (2 billion net ton.km) in relatively flat terrain and 6 million tons (3 billion net ton.km) in hilly terrain.

New rail connections (and efficient rail operations) will be required by new ports as well as by major port expansions, particularly where the expanded port is intended to function as a regional hub port with significantly larger traffic flows¹⁹.

Development of efficient and rapid passenger rail connections between all major urban centres of Africa will be required to satisfy the expected transport demand in the medium and long term.

3.3.2 Key Issues on Rail Transport

Rail infrastructure

- a) The condition of the African Regional Transport Infrastructure Network (ARTIN) shows over half of the railways are in poor condition;
- b) Even with a standard gauge system on all African railways, there are still different network properties (clearance, axle load, and signalling and communication systems);
- c) Old technologies and bad conditions of all railway assets especially tracks, rolling stock, signalling, communications, Stations, yards and workshops;
- d) The existing railway lines do not serve some important production locations (such as mining locations);
- e) New railway lines need high construction budgets; and
- f) There is a lack of rail infrastructure maintenance and upgrading due to the shortage of finance.

Railway Rolling Stock

- a) Shortage of rolling stock (locomotives and wagons);
- b) Old locomotives and lack of maintenance, which leads to high fuel consumption and low productivity;
- c) Lack of suitable wagons for the different commodities;
- d) Lack of Handling Equipment;
- e) Rolling stock with different specifications and not standardized which prevent the continuity of operation; and
- f) Lack of skilled maintenance workers and low human performance.

Railway services

- a) Inefficient Management and low human performance;
- b) Competitiveness with road transport since road users do not pay full costs in the way that railway users do; and
- c) Delay in service due to the low power/speed locomotives and speed restrictions.

¹⁹ Rail Infrastructure in Africa Financing Policy Options, African Development Bank 2015

Human resources

- a) Typical management regimes of the railways are inefficient enough to respond to the challenge of road transport;
- b) The capacity of human resources in most of the Railway Departments is low; and
- c) The concession contracts of the railway projects often do not include knowledge transfer, which is vital in the short and long term.

Railway Safety

- a) Bad condition of tracks and rolling stock has a negative impact on safety;
- b) The damage of railway accidents is high in spite of its low rates; and
- c) Railway Training School in Africa have been closed, leading to operation crews not being given safety training and there is little safety culture, hence many human errors.

Railway Financing

- a) Shortage in financial resources to cover the construction of new railway lines, costs of maintenance and upgrading the infrastructure and the costs of purchasing and maintaining the rolling units in addition to the operation cost;
- b) Most countries current legislation does not encourage the investment in the railway sector.
- c) Most states do not promote the railway projects to attract investors;
- d) There are also specific challenges related to the infrastructure needed to support private sector mining developments. Since these developments depend on private sector initiatives and investment, but are still dependent on government-owned transport infrastructure, PSP are needed; and
- e) Concessions' performances are often affected by poorly crafted subsidies schemes for passenger services, which affected the relationship between governments and the investors, as the amount and nature of funds that the former had to transfer to the latter were never clearly established.

3.3.3 Recommended Policy Measures for Rail Transport

Connectivity

- 1) All new railway lines should now be constructed to standard gauge. They should be designed for 60 Kg rail and minimum axle loads of 25 Tonne, high speeds (80 – 120 km/);
- 2) Upgraded railway lines should move to standard gauge. Where this is not possible in the short term, measures should be taken to ensure that the track bed is capable of accommodating standard gauge in the future;
- 3) The development of a **Pan African High Speed Rail (HSR) network**²⁰, which will connect all the major cities/capitals of the continent, is intended to be a catalyst for manufacturing, skills development, technology, research, integration and intra-African trade, investments and tourism;
- 4) REC's should bring forward proposals for the High Speed Rail (HSR) network in their regions, and to co-ordinate with each other on linking these components of the network;
- 5) Member states should identify specific corridor alignments for the HSR in line with network

²⁰ AUC Vision 2063 Flagship Programme (integrated High Speed Train Network).

- proposals and safeguard these for future development;
- 6) Railway operators should adopt more systematic approaches to maintenance of track;
 - 7) The management of the regional rolling stock should be improved;
 - By planning acquisition and renewal and introducing maintenance programs at REC level in coordination with International Financial Institutions (IFIs) and private parties.
 - By considering opportunities for renting or leasing rolling stock in the short or medium term to avoid bearing high initial investment costs.
 - 8) Railway operators should improve the attractiveness of their services to freight customers through adopting tracking systems, directly contracting with road transport operators to provide a door-to-door service, to modernise marketing efforts and make sure that where appropriate, railways are fully integrated into SMART Corridors through cargo/container tracking, Single Window technology for imports and exports, and rolling stock and driver tracking and information systems; and
 - 9) Cross-border railway operations should be improved by using best practices in term of movement of locomotives and wagons and in term of custom clearance.

Financial

- 10) The participation of the private sector along with innovative methods to finance the rail transport sector should be increased.

Safety

- 11) Safety regulations and certifications should be harmonized at the level of the continent, this being essential to unify the safety conditions all over the continent and reduce the human errors;
- 12) The UAR should develop Common Safety Targets (CST) to assure a short-term control of safety performances and a long-term convergence of safety performance, through the use of common ways of measuring and assessing safety performance on a macro level; and
- 13) Independent Railway Regulators, whose role should be to regulate operators in the interests of safety and environmental protection, should be established for all railway lines.

3.4 Waterborne transport

3.4.1 Situation Analysis

Maritime transport

Maritime transport remains the dominant mode in international trade, carrying 80% of the global trade in 2015. Africa depends on seaborne trade more than other regions; evidenced by the fact that 91% of Africa's merchandise trade is by sea. Maritime transport and intra-African trade are constrained by aging fleet, high freight costs and poor inland transport. Also a challenge is the poor connectivity between the mainland continent and African Island states²¹. The development of a maritime transport system is a key enabler and catalyst for the competitiveness, socio-economic development and integration of the continent and thus should be viewed as an essential and strategic area of economic consideration. The development of maritime transport services in Africa is rapidly shifting from the "North-South" to a global context, especially with East Asia and South America.

²¹ Vision 2063.

The market share of African shipping companies in the global shipping is low. The demand for maritime transport services in Africa far outweighs the supply of African owned or registered ships to move freight from their origins to Africa destinations. Major foreign shipping lines fill this vessel supply gap.

Regional Maritime Transport, in particular in Western and Central Africa, is also largely done by international shipping lines that provide, for the time being, available spaces in their ships calling at all the ports of the region.

Volumes of Africa seaborne trade have been on the rise for the last decade, with exports increasing from 721.9 million tons in 2006 to 761.4 million tons in 2014 and imports increasing from 349.8 million tons to 466.0 million tons in 2014.

In 2010, the Africa Union adopted the *2010 African Maritime Transport Charter* whose overarching aim is to strengthen cooperation among State Parties in maritime transport, inland waterways navigations, ports and related activities, especially in the harmonization of maritime policies, legislation and procedures.

The Objectives of the 2010 African Maritime Transport Charter are set out in Article 3 thereof and include, notably:

- (a) *The articulation and implementation of* harmonized maritime transport policies capable of promoting sustained growth and development of African merchant fleets and to foster closer cooperation among the States Parties of the same region and between the regions;
- (b) *The promotion of the* funding, undertaking of research studies by national institutions that encourage the promotion and development of cooperation in maritime and inland waterways transport and port operations among States Parties and regions; and
- (c) *The promotion of the* development of multimodal transport and integration of all modes of transport.

Ports

There are more than 50 ports in Africa, which are linked to the PIDA ARTIN surface transport system. Details are provided in Annex 4. Port infrastructure and capacity in Africa has not kept pace with increases in vessel size. This has caused inefficiency and lengthy delays in movement of maritime traffic that significantly increases the cost of doing business across the continent. Promoting inter-island connectivity and developing regional/ sub-regional hub ports, as well as upgrading or redeveloping port infrastructure and improving cargo handling with a potential to reduce freight costs, needs to be considered. In Africa, most countries are relatively far from the major East-West shipping routes. However, some countries have been able to benefit from their geographical position and offer trans-shipment services. Egypt, for example, benefits from the traffic passing through the Suez Canal, and Mauritius and Morocco both have established important hub ports.

Generally speaking, the planning and development of ports, road/rail networks in African countries is neither coordinated nor integrated at a regional level nationally or regionally. This leads to lengthy delays in cargo movement across African destinations and consequently the increase in the cost of transport services.

Inland Waterways Transport

The inland water transport mode is underutilized in Africa despite the fact that it can be a cheap means

of providing access to riverine areas. The development and exploitation of inland water transport has been slow over the past decade, at a time when its importance in other regions of the world has increased. This is because Africa has only a few internationally navigable inland waterways such as the Congo, the Nile, the Zambezi, the Senegal and the Niger basins. These waterways are underdeveloped as river depths vary seasonally and are unpredictable. Lake transport offers the best potential for inland water transport, particularly in Eastern and Central Africa. The major constraints of inland waterways transport include: poor infrastructure at terminals, poor safety and security due to a lack of uniform safety standards and the lack of modern fleets to provide reliable transport services.

Generally, inland waterway transport (IWT) ought to be characterised by a high degree of reliability and safety compared to other transport modes. IWT is expected to be more sensitive to climate change aspects than other transport modes, e.g. in terms of water level fluctuations and resulting effects on costs and reliability. Shocks to the system caused by rapid flooding can adversely affect port infrastructure as well as riverbanks. There is a more gradual trend in many areas towards lower water levels that affects navigability and increases the need for dredging. Rivers, lakes and associated transport infrastructure are being impacted by climate changes, as well as by navigation system operations and vessels. Impacts on rivers, channels and canals may be mitigated through changes in operational control of flow or by modifications to channel maintenance. Because water supply for inland navigation is intimately connected to and competing with other water users such as domestic water supply, industrial and agricultural demand, and ecosystem requirements, operational changes to water control will require legal and environmental analyses and much closer co-ordination between government agencies, and between governments. An example is the tri-lateral arrangement between Mozambique, Malawi and Zambia concerning the proposed inland port on the Shire River.

Impacts of climate change relevant to inland navigation, such as low water levels or floods, are well known phenomena in many parts of Africa. The users of the navigation systems and the operators of the vessels try to respond to these phenomena in a way that assures the reliability of inland navigation. Changes in transport management and operation of the vessels are short-term responses addressing situations, when navigation is inhibited for a short period of time. If navigation conditions are altered over longer periods of time, adaptation of the fleet and new vessels of different design seem to be inevitable.

Water hyacinth can seriously restrict movement on waterways due its thick growth and matting. Tributaries and lakes are more affected by this phenomenon than faster-flowing main rivers. A specific example is parts of Lake Victoria.

3.4.2 Key issues on Waterborne Transport

Ports

- a) Limited capacity of ports and maritime logistics to handle increasing volume of traffic. There are many ports in Africa whose volumes currently exceed their design capacities, especially for containers. West Africa, East Africa, and Southern Africa are three regions that face port capacity gaps;
- b) Due to increased trade, ports in Africa increasingly continue to receive large ships and there is a corresponding demand for efficiency at ports to handle cargo with lesser throughput times. Competition on cargo diversion for ports and maritime corridors in Africa does not meet these challenges thus increasing congestion at ports;
- c) Ports planned to become regional hubs lack adequate capacities at berths and channels to accommodate panamax and post-panamax vessels;

- d) There are few regional shipping lines, which could service hub ports;
- e) The capturing, cleaning and processing of raw data to prepare standardized outputs for the purpose of developing port performance indicators and benchmarking has been impaired by variance, validity and reliability concerns on the information obtained from various ports due to different approaches, depth, quality and definitions of data;
- f) The majority of African States have not put in place adequate measures to facilitate the implementation and enforcement within their jurisdictions of national and international conventions, laws and regulations on maritime safety and security. Further, few African States have taken steps to develop the necessary regulations to govern the safety and security of vessels that are not subject to IMO Conventions and regulations;
- g) The unloading of ships sewage in the ports or close to the coastline is often done by international shipping lines without proper controls;
- h) There is a shortage of trained and duly certificated seafarers in the maritime sector in Africa. This is caused by the fact that there are few fully-fledged maritime training institutions in Africa and thus the training facilities are not easily accessible and affordable to all. There is also a lack of maritime education and training mainstreaming and thus a lack of awareness of training opportunities in the maritime sector; and
- i) The governance systems of maritime transport are not well developed as Governments in Africa lack laws that are precise and that reflects a clarity of and distinction between mandates and responsibilities of key ministries, departments, and agencies involved in port management.

Inland Waterways Transport

- a) Navigable inland waterways transport has been neglected and has not been given due consideration thus has deteriorated over the years;
- b) Waterway users sometimes have responded to decreased water levels by either light loading of existing vessels or use of vessels with decreased draft;
- c) Measures to co-ordinate effectively with other modes, particularly rail, are not undertaken;
- d) The Congo basin system suffers from a poor regulatory framework, and numerous nonphysical barriers to movement. As a result, despite vast potential, the waterway system remains a marginal transport mode;
- e) The DRC has more navigable rivers and moves more passengers and goods by boat and ferry than any other country in Africa. Kinshasa, with 7 km of river frontage occupied by wharfs and jetties, is the largest inland waterways port on the Continent. However, much of the infrastructure — vessels and port handling facilities — has suffered from poor maintenance and internal conflict;
- f) Dealing with water hyacinth requires either intensive human labour to constantly cut the weed or treatment using biological agents, such as beetles is not widely undertaken;
- g) Agreements for the promotion of inland water transport for transit and cross border trade are rare; and
- h) Human capacity is inadequate in the sector; there tends to be a lack of awareness of the need for specialised training for ships captains and crews, as well as related shore based activities.

3.4.3 Recommended Policy Measures for Waterborne Transport

Ports

- 1) Sufficient port capacity and maritime logistic capacity should be implemented to satisfy expected transport demand. West Africa, East Africa, and Southern Africa are three regions that face port capacity gaps;
- 2) Port planning in the national transport should be integrated with the overall transport planning system to ensure the establishment of an integrated transport system and that ports are well served with link roads and railways;
- 3) Some of the African ports should be extended in order to become regional hubs and offer adequate capacities at berths and channels to accommodate panamax and post-panamax vessels;
 - Member States within the same geographical areas should establish technical cooperation mechanisms in order to establish regional hub ports.
 - Member States should establish national or regional maritime industrial hubs for value adding, job creation and logistics cost reduction.
- 4) The development of passenger terminals and facilities should be included in the national transport system plans.

Inland Waterways Transport

- 1) Navigable inland waterways transport that has been neglected and has not been given due consideration should be re activated and developed;
- 2) The potential for inland water transport to contribute as a cheap and environmentally friendly/ sustainable (and multi-modal) mode of transport in the African transport system should be recognised;
- 3) Member states and REC's should bring forward plans to foster inland water transport through the provision of appropriate infrastructure, laws and regulations (to address common navigation issues and logistics to support efficient cross-border trade (thereby promoting investment co-ordinated in terms of geographical needs, port locations, modern integrated port and handling facilities, etc.);
- 4) Relevant member states should establish or extend maritime administrations with a view to foster and regulate inland water transport; and
- 5) Relevant member states should adopt boat-building standards for inland water transport in order to improve safety on the water, using best practices worldwide.

Sectoral Safety, Environmental and Finance

- 1) The implementation and the enforcement within the State jurisdictions of national and international conventions, laws and regulations on maritime safety, environment and security should be undertaken;
- 2) The use of modern low energy and low emission IWT vessels should be fostered;
- 3) Measure should be taken to promote the sustainable navigability of rivers and lakes;
- 4) The unloading of ships sewage in the ports or close to the coast line should be prohibited (this is often done by international shipping lines without proper controls);
- 5) Training programs should be developed to produce trained and duly certificated seafarers in the maritime sector in Africa;
- 6) Fiscal policies that accommodate private finance in port and other maritime infrastructure development projects as well as multi-modal transport (IWT /rail containers) projects should be developed, adopted and implemented; and

- 7) User contributory funds that will be earmarked and used regularly to maintain and improve port infrastructure (including dredging which is essential to current and future maritime trade) should be implemented.

3.5 Air Transport

3.5.1 Situation Analysis

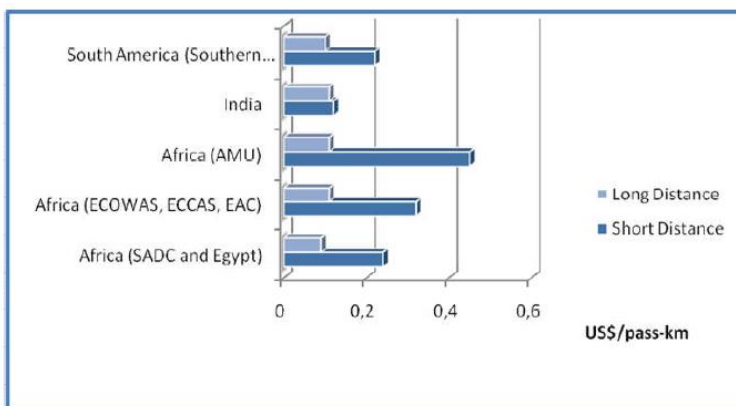
Overview

Overview

Africa’s air transport sector is the least developed but one of the fastest growing in the world. The continent has some 15% of the world’s population and 20% of its landmass, but it currently only accounts for some 4.5% of the world’s aviation. At present, the aviation sector directly supports some 113,000 jobs across the continent and supports some US\$21 billion in GDP across the continent²²

The demand for air travel in Africa is expected to increase significantly over the next 40 years as a result of rapid population growth, increasing urbanisation and rising income levels. By 2040, around 50% of Africa’s population will be urbanised, with African cities adding more than 500 million people – twice as many as rural areas over the same period. The aviation sector in Africa is less developed than other regions of the world, primarily because the level of Gross Domestic Product (GDP) per capita is such that the Propensity to Fly is comparative low. Route networks in Africa are underdeveloped and airfares are comparatively high, as shown in Figure 4.2. Many African airlines lack the economies of scale of the larger international carriers and are not part of a global alliance. The comparative cost of air travel in Africa in comparison with other regions of the world is shown in Figure 3.1 below.

Figure 3.1: Comparative cost of air travel – Africa and other world regions



Source: PIDA Outlook Report

The African airline market is dominated by a small number of larger carriers providing both inter-continental and regional services. Many smaller airlines have struggled to be financially viable, despite state support in some cases. Development of the regional airline sector is hampered by a lack of market liberalisation despite the introduction of the Yamoussoukro Decision. The low-cost carrier

²² Air Transport Action Group – Fact Sheet for Africa

market is currently underdeveloped, but offers considerable potential, subject to market liberalisation, income growth and increased Internet penetration.

In terms of airport and ATM (air traffic management) infrastructure, the situation is patchy. Whilst some airports have been modernised, others are undeveloped and unsuitable for air travel in the 21st century. Significant investment will be required in new airport and ATM infrastructure to provide sufficient capacity to meet the expected demand for air travel in the next 40 years.

Current traffic levels

In overall terms, African airports handle some 164 million passengers annually. This can be categorised into three groups – inter-continental, continental (or regional) and domestic traffic. Each of these has different characteristics as indicated below.

In terms of available seat capacity, inter-continental flights account for some 42% of total African traffic. Europe has always been the most significant market, accounting for some 56% of overseas traffic. Continental air traffic (or cross-border traffic within Africa) accounted for about one quarter of all air travel in Africa in 2013, with the Southern and North Africa regions representing the largest markets, with 29% and 22% market share respectively. Intra-regional traffic accounted for just 14% of the overall continental air traffic market in Africa. The remaining traffic is intra-state or domestic. This is variable throughout Africa, with some countries such as South Africa and Nigeria having a wide range of domestic services. In overall terms, domestic markets in sub-Saharan Africa have been declining, largely due to the difficulties faced by smaller national carriers.

Forecasted traffic growth

Given its relatively low traffic base, Africa together with the Middle East and Latin America is forecasted to have the strongest growth in global air traffic in the next 20 years.

Boeing’s latest global forecasts predict that total African GDP will grow by some 4.6% pa over the next 20 years, air passenger traffic (measured by RPKs) by 5.7% pa and air freight (measured by RTKs) by 6.7%. This compares against global passenger growth of 4.9% pa and airfreight growth of 4.7% pa. Airbus’ recent air passenger forecasts, based on RPKs, predict that traffic will grow by 6.2% over the period 2014-2024, with a lower growth rate of 5.1% pa from 2024-2034.

PIDA forecasts have been based on the latest ACI Africa traffic statistics (2014) and amalgamated with the latest Boeing and Airbus forecasts and own estimates. These updated forecasts, which include domestic traffic, are shown for a ‘most likely case’ on a regional basis (North, West, Central, East and Southern Africa):

Figure 3.2: Passenger traffic forecasts – Africa by region – 2014-2040 – Most likely case

Region	2014	%	2020	%	2030	%	2040
North	67.8	5.1%	91.4	5.3%	153.2	3.9%	224.5
South	38.1	5.1%	51.4	4.3%	78.2	3.9%	114.7
East	30.1	6.7%	44.4	6.4%	82.6	5.5%	141.1
West	23.5	6.3%	33.9	6.0%	60.7	5.2%	100.8
Central	4.5	6.7%	6.6	6.4%	12.3	5.5%	21.1
Total	164.0	5.6%	227.7	5.4%	<u>387.1</u>	4.5%	602.2

These forecasts suggest that on an overall basis, traffic levels will increase nearly four-fold over the next 25 years, with some regions (e.g. East, West and Central Africa) growing at an even faster rate.

3.5.2 Key issues

To meet the expected demand in the next 25 years, the African aviation industry faces a number of challenges:

There is a need to improve the utilisation and availability of specialist aviation staff - particularly trained aviation safety and security inspectors: The safety and security of air travel is based on adherence to international regulations and standards as defined by the International Civil Aviation Organisation (ICAO). All contracting states are required to abide by the regulations within the Chicago Convention, its annexes and ICAO's Standards and Recommended Practices (SARPs). In certain cases, African civil aviation authorities have not fully implemented ICAO regulations and standard recommended practices (SARPs). As of September 2016, some 23 out of 45 (=51%) of reporting states had not met the target of 60% Effective Implementation (EI) of ICAO regulations and SARPs.

A roadmap for improving aviation safety has been established (the AFI Plan²³) and ICAO facilitates assistance through the **Cooperative Development of Operational Safety and Continuing Airworthiness Programmes (COSCAPs)** and **Regional Safety Oversight Organizations (RSOOs)**, through which groups of States can collaborate and share resources to improve their safety oversight capabilities. A second road map, the AFI Security and Facilitation Plan (AFI SECFAL), covers aviation security. Financial and training support to the COSCAPs and RSOOs is provided by ICAO headquarters, the World Bank, the African Development Bank (Fad) and by the European Union.

Cooperation agreements between airlines are few. There is a need for Market liberalisation and airline consolidation: The regional airline market needs to have reform of bilateral air service agreements (BASA's) and the Yamoussoukro Decision needs to be implemented: A key factor determining the level and the future growth of continental air traffic in Africa is the extent of airline market liberalisation. Whilst, in principle, African airlines can freely introduce new routes and services frequencies and set their own tariffs, this is largely governed by the bilateral air service agreements between countries. Although under the Yamoussoukro Decision²⁴, 44 African signatory states are required to allow free market access in terms of airline seat capacity, service frequency and tariffs to all registered African airlines (i.e. African 'Open Skies'), restrictions still apply in some circumstances. As a result, route networks are often undeveloped and there is a lack of market competition leading to high tariffs. In general, route networks are less developed in West Africa in comparison to north, east and southern Africa. There is also a lack of airline interlining agreements in comparison to other regions of the world.

In January 2015, at the AU meeting in Addis Ababa, Ethiopia, some 14 African states made a solemn commitment to implement the YD and agreed to facilitate other states to do so. However, some difficulties remain, particularly the lack of an effective Implementing Agency, competition regulations and a dispute settlement mechanism at a pan-African level, either through the AUC or AFCAC. An Activity Road Map for implementation of the YD has been prepared by the AUC.

In terms of inter-continental traffic, the development of bilateral agreements between key countries or country blocks such as the EU, US, ASEAN etc. and the AU or the RECs should be encouraged and extended. Access to the US, however, is restricted as to date only five African states have airports

²³ Comprehensive Regional Implementation Plan for Aviation Safety in Africa (AFI Plan)

²⁴ The Yamoussoukro Decision was adopted by 44 signatory states in 1999 and followed the earlier Yamoussoukro Declaration adopted in 1988.

which have achieved the FAA Category I status needed for such routes. There are few shared regional facilities such as MRO's (aircraft maintenance, repair and overhaul) and training centres.

There is a need to develop Airport and ATM infrastructure: The majority of airports in Africa are state-owned and development is essentially the responsibility of national governments rather than a result of policy directives or initiatives at a pan-African or regional level. There has been significant donor funding to modernise some airports, particularly the major hubs, although others are in a poor condition and are state subsidised. Revenue is often limited by a lack of commercialisation e.g. in airport retailing, food and beverage and other concessions or by low airport charges, particularly for state-owned airlines. There is a lack of secondary airline hubs, largely due to their lack of traffic rights. Many airports have limited or no competition in certain services, e.g. ground handling, fuel supply etc. and legislation at both a pan-African and national level is required so that this can be introduced, where appropriate.

Airport capacity will need to increase substantially to meet the expected growth in the next 20-30 years. This should be achieved on an incremental basis – and all airport development should be rigorously assessed in terms of its future market and financial viability. In the longer-term, some airports could be privatised or developed through public-private partnerships (PPP), dependent on their financial viability.

A cost-effective air traffic management system with appropriately trained staff and modern equipment is needed: Air traffic management (ATM) is largely undertaken by national service providers, although there is some joint provision (e.g. through ASECNA in West Africa). The ATM infrastructure in some African states is inadequate and there is a lack of radar cover on certain routings. Improvements can be achieved through the harmonisation of airspace e.g. through adopting ICAO's Aviation System Block Upgrades – ASBUs, through the use of satellite technology particularly where there is inadequate radar coverage and through the better management of traffic flows.

There is a need for enhanced Environmental and Consumer Protection: to minimise the sectors impact on the environment, including climate change, air quality, and aircraft noise, etc. At present, aviation is not included in the Kyoto Protocol for carbon emissions. The EU has set up the EU Emissions Trading Scheme to provide some control on the extent of carbon emissions by intra-EU flights. This, however, does not currently apply to inter-continental flights including those between Africa and the EU. ICAO is currently studying the possibility of setting up a global emissions trading scheme for aviation. If and when it does so, African airlines would be expected to fully comply with this. Other environmental policy measures e.g. to reduce NOx levels, and aircraft noise will also be necessary.

Africa must fully embrace new technology and innovative projects within the aviation sector. Airlines should be encouraged to use fuel-efficient and less noisy aircraft. Airports should adopt appropriate safety and security measures (e.g. the EGNOS²⁵ aircraft approach system), e-passports, biometric check-in etc. Consideration should also be given to the future regulation of drones and similar technologies.

In line with good global practice, it is important that air passenger rights are protected for those using flights to, from and within Africa. This includes appropriate compensation for flight delays, rerouting, denied boarding and lost baggage. Further legislation may be necessary to protect the rights of certain passengers e.g. those with reduced mobility. These issues need to be addressed by setting up the

²⁵ EGNOS - European Geostationary Overlay Service

appropriate policy measures and legislation at the pan-African level (e.g. through AFCAC, AFRAA etc.) and at a regional level through the REC's and other regional bodies (e.g. the RSOO's and COSCAP's). Where action needs to be taken by national governments and government organisations, to enact policy measures, the relevant pan-African and regional institutions play a key supporting and monitoring role – particularly where national government have inadequate resources or funding.

3.5.3 Recommended Policy Measures for Air Transport

Safety and security

- 1) The AFI Plan and the AFI SECFAL Plan should be embraced by all African states;
- 2) African states should be supported in order to meet the target of 60% Effective Implementation (EI) of ICAO SARPS by 2017;
- 3) Continued support should be provided through AFCAC, the COSCAPs and the RSOOs;
- 4) Collaborative measures e.g. the pooling of aviation safety oversight inspectors at a regional level should be introduced;
- 5) Donor assistance projects, e.g. the EU's AVSEC (Aviation Security), SAFIR (Satellite Navigation Services for the African Region), TRECA (Training in EGNOS GNSS in Africa) and PIDA (Programme for Infrastructure Development in Africa), the US 'Safe Skies for Africa' initiative should be encouraged; and
- 6) All African airlines should be required to successfully complete the IATA IOSA audit.

Market liberalisation and airline consolidation

- 1) The Yamoussoukro Decision (YD) should be implemented as quickly as possible to create fully Open Skies across Africa in line with the Activity Road Map prepared by the AUC;
- 2) All 14 African states signing the solemn declaration to implement the Yamoussoukro Decision by 31 July 2017 should ensure that all necessary national legislation is in place by this date;
- 3) All other African states should be encouraged to join as soon as possible. In the longer-term, penalties might be introduced for any non-compliant state;
- 4) An effective Implementing Agency and a dispute settlement mechanism should be established as soon as possible at a pan-African level, either through the AUC or AFCAC;
- 5) The development of a financially strong airline sector should be encouraged – e.g. through mergers, partnerships and the membership of global alliances;
- 6) The development of bilateral agreements between key countries or country blocks such as the EU, US, ASEAN etc. and the AU or the RECs should be encouraged and extended;
- 7) Airlines should be encouraged to introduce modern, fuel efficient and less noisy fleets; and
- 8) State governments should be encouraged to sign the Cape Town Agreement in order to facilitate the funding of new aircraft fleets for their registered airlines.

Airport and ATM infrastructure

- 1) The airport sector in Africa is expected to be primarily state-owned in the short to medium-term, although privatisation and public private partnerships (PPP) should be encouraged, where financially viable;
- 2) There will be a need to modernise and to provide additional airport capacity –although this should be subject to market and financial viability and environmental sustainability;

- 3) Airports should be encouraged to increase revenue through more appropriate charges in line with ICAO policy and though increased commercialisation;
- 4) Increased competition in airport services e.g. ground handling, fuel supply etc. needs to be introduced at some airports; and
- 5) Improvements in ATM can be achieved through the harmonisation of airspace e.g. through adopting ICAO's Aviation System Block Upgrades – ASBUs, through the use of satellite technology and through the better management of traffic flows.

Environmental sustainability

- 1) African airlines should be encouraged to adopt environmentally sensitive practices (e.g. to reduce fuel burn) and should comply with a global emissions scheme if introduced;
- 2) Airports should be expected to meet 'carbon neutral' and other pollutant targets;
- 3) Where appropriate, special airport charges could be introduced for more noisy aircraft; and
- 4) All airport development should be subject to a detailed environmental impact assessment, including any impacts on displaced communities.

Consumer protection

- 1) Legislation for the protection of air passenger rights e.g. compensation for flight delays, rerouting, denied boarding and lost baggage should be introduced at a national level together with appropriate procedural mechanisms; and
- 2) Further legislation may be necessary to protect the rights of certain passengers e.g. those with reduced mobility.

Technological change

- 1) The African aviation sector must embrace new technology to improve efficiency, safety, security, cost-effectiveness and environmental sustainability;
- 2) Airports should introduce bio-metric check-in, e-passports etc. in line with ICAO plans; and
- 3) Innovative technologies such as drones should be carefully assessed and appropriate legislation should be introduced at the pan-African and national levels as required.

3.6 Urban Transport

3.6.1 Situation Analysis

There is rapidly growing urbanization: urban areas of Africa comprised about 414 million inhabitants in 2011. By 2030, this number is expected to rise to almost 750 million and by 2050, to over 1.2 billion. The annual urban population growth rate of Africa is forecast as by far the highest in the World, at over 3.0 % p.a. between 2011 and 2030. There are some very large metropolitan areas (Cairo, Lagos, Kinshasa, Gauteng) having poorly developed public transport systems, although national efforts tend to be focused in these cities. Second sized cities (of less than 1 million inhabitants) tend to be assigned a lower priority. Mobility levels vary considerably across the Continent. A small but significant part of the population does not travel, being constrained by the poverty trap and social customs (women have

a lower propensity to travel in some areas). The importance of walking (ranging from 40% of trips in some Cities to 70% / 80% of trips in many Sub-Saharan Cities) is a consequence of poverty and rural influence. Pedestrian facilities are often of low quality or non-existent.

Levels of motorized (or mechanized) mobility appear low (with rates of around 0.8 daily trips/person observed in many cities). This is increasing as a result of GDP growth per capita. Private car usage (and ownership) is low compared to other Continents, but is increasing. Some Cities in North and South Africa however have much higher rates of use, representing around 50% of motorized trips.

As a result of increasing motorized travel, involving private cars and various different types of public transport vehicles (the majority of which have low capacity), congestion in urban areas is increasing everywhere and in some Cities is a major challenge, with negative consequences in terms of urban pollution, reduced air quality and inefficient use of energy.

The main mode of urban transport is public transport, which may have many different operators, including bus companies and paratransit operators. In some Sahelian Cities, motorcycles or bicycles are common individual modes of transport (Ouagadougou is an example) but this is an exception. Paratransit refers to public transport unscheduled services supplied by private operators without standard accountability running small to medium capacity vehicles (including motorcycle taxis, collective taxis, and mini-buses with various sizes from 12 to 45 seats). Paratransit plays a major role in urban transport in Africa, dominating the market in many Sub-Saharan cities (and comprising between 50% - 100% of the total public transport market). Paratransit is common in the majority of Cities in Northern Africa and in South Africa.

There are only a few mass rapid transport systems in existence in Africa but many projects have been planned. Mass transit refers to high-capacity public transport systems, usually operated on dedicated infrastructure (railway or road based), e.g. regional trains, metros, light rail transit (LRT) and bus rapid transit (BRT). Many implementation difficulties are nevertheless experienced after such projects have been launched. Once such projects become operational there have been concerns over financial viability.

In summary mobility conditions and accessibility in urban areas are often sub-optimal in terms of travel time and comfort. High travel cost is an obstacle to travel on public transport for the poor segments of urban population, who are obliged to walk.

3.6.2 Key Issues on Urban Transport

Urban Transport in Africa faces a number of challenges, such as:

- a) How best to handle very rapidly increasing urban travel needs and develop urban institutions to meet these needs;
- b) How to combine structural solutions for the longer-term with immediate solutions for the transport demand of today, including the need for equity and access for the poor and disabled;
- c) How to increase capacity by developing and efficiently modernizing the urban public transport supply, with reductions in operating costs and fares;
- d) How to mobilise the private sector in urban transport development (infrastructure and services);
- e) How to ensure complementarity between the paratransit and conventional bus modes;
- f) How to ensure that Paratransit evolves to become more professional and integrated;

- g) How to develop appropriate Urban transport solutions for individual African cities, applying common principles favouring sustainable urban transport;
- h) For the larger conurbations how best to cater for daily movements that cross urban boundaries, and
- i) How to reduce individual travel modes that are the main GHG contributors and to increase public transport vehicle performance (engine specifications, fuel used, maintenance effort, and maximisation of occupancy rates).

3.6.3 Recommended Policy Measures for Urban Transport

The following measures respond to the challenges faced and help structure urban transport policies within African cities. Policy measures vary. Recommendations may not be implemented therefore in the same manner in each City, because of differences in:

- City size;
- Socio-economic development;
- Experience through previous urban transport developments; and the
- Regulatory and financial climate.

Upgrading of Public transport systems

- 1) Design and implement mass rapid public transport projects along corridors of high demand;
- 2) Consolidate bus networks as a component of a multimodal urban transport system;
- 3) Identify adequate and sustainable sources of financing for urban public transport development;
- 4) Fare policy should permit cost recovery from operators, even if concessionaire fares are also necessary;
- 5) Consider a range of potential public transport funding sources: Fuel taxes, Vehicle registration taxes, Taxi and minibus licenses fees, Royalty fees from contracted operators, Parking fees and urban tolls, contributions from employers and commercial activities, land Value capture.
- 6) Explore PPP options for mass transport system development.
- 7) Work with the Paratransit sector to evolve towards more organized and integrated systems.
- 8) Create and train specialized urban police units for urban traffic and urban transport.

Roads and highways

- 1) Structure urban development by means of developing hierarchical road and highway networks;
- 2) Design roads and highways for a wider variety of modes; not only cars and trucks, with attention to management of pedestrian flows and to access to public transport infrastructure (bus stations, bus lanes, etc.);
- 3) Progressively develop Traffic Management measures (one- way traffic schemes, parking management, coordination of traffic signals, freight transport routes, traffic control centres...) paving the way for transport demand management;

- 4) Consider Car use control/restraint measures, initiated firstly through parking pricing measures in dense urban areas then secondly by road pricing schemes, where appropriate;
- 5) Study measures to limit and discipline motorcycle use in urban areas and especially in dense central areas. Encourage the use of less polluting 4-stroke and electric engines;
- 6) Develop urban road safety measures, especially for protecting pedestrians; and
- 7) Design Highway (and mass rapid transport) projects in consideration of Urban Development Plans.

Institutional reforms

- 1) Progressively develop Urban or Metropolitan Transport authorities.
- 2) Create a coordination committee between the main administrations (State and City level) where no Urban Transport Authority exists.

Non-motorised transport

- 1) Promote pedestrian facilities, considering local (low cost) solutions;
- 2) Consider potential pedestrian movements in design highway design, including access to Public Transport terminal and bus stops; and
- 3) Provide safe cycling facilities where possible, accompanied by sensitization actions.

Supporting actions

- Develop training (and research) programs for urban transport and mobility and support the formation of urban transport and mobility observatories.

4. Multimodal Transport

4.1 Background

Africa has still a segmented and un-integrated transport system. Each mode tends to exploit its own advantages in terms of cost, service, reliability and safety, within an environment of competition. This lack of integration between the modes is accentuated by public policy.

With segmented transport, each carrier takes responsibility only for the portion he performed himself; he issues his own transport bill of lading with different bases for liability, and different limitations of liability for the carrier. These arrangements are often conducted in an uncoordinated manner, resulting in increased total transport costs.

Intermodal transport or multimodal transport are both used in the context of cargo movement from origin to destination through transport combination with various modes of transport such as ship, rail, truck, airplane, river vessels, and primarily the use of containers. This method reduces cargo handling, and so improves security, reduces damage and loss, and in principle allows freight to be transported faster.

In Africa, intermodal transport exists only in a few corridors (such as the transport of some containers between Dakar and Ouagadougou using the rail up to Bamako and then the road or between Douala and Ndjamena using the rail up to Ngaoundéré and then the road and between Cotonou and Niamey using the rail up to Parakou and then the road up to Niamey) or the rail between Mombasa and Kampala and then the road to Kigali and Bujumbura or the rail between Dar es Salam and Isaka and then the road to Bujumbura or to Kigali.

There is a strong need and urgency to develop intermodal transport in Africa in order to increase the efficiency of the transport along the corridors, and to reduce costs and increase transport sustainability and as important to develop an African multimodal transport industry.

4.2 Promoting Intermodal Transport and Containerization

Intermodal transport (or combined transport) is *“the movements of goods in one and the same loading unit or vehicle which uses successively several modes of transport without handling of the goods themselves in changing mode”* (European Conference of Ministers of Transport –ECMT)

Promoting intermodal transport means integrating separate transport systems, i.e. the use of at least two different modes in a trip from an origin to a destination through an intermodal transport chain, which permit the integration of several transportation networks.

The “driver” of intermodal transport has been the container which *“ensures the transport of unitized cargo from its origin to its final destination with efficiency and least possible risk”* (UNCTAD). Containers allow both economies of scale and improvements in handling speed and throughput, and facilitate interchange between modal systems. The usage of containers allows the complementarity between freight transport modes by offering a higher fluidity to movements and standardization of loads.

Containers have become the most important component for maritime intermodal transport. For land transport, the two key challenges are the choice of land transport modes in an intermodal transport chain, and the need to minimize costs and delays related to moving containers between modes.

4.3 Containerization and Infrastructure requirements for Multimodal Transport

4.3.1 Maritime transport

Shipping is the most cost effective means of transport over long distances, and provides the link between land corridors and the overseas countries that are the destination of exports and the origin of imports. The main factor that affects the cost and quality of maritime services between any two ports is the level of demand. If the level of demand from the hinterland of a port increases, the port may serve as a regional hub for at least one shipping line. If demand is not high, the port should serve as a feeder to a larger port.

The introduction of “Mega” container ship” (8000-12500 TEU), against the first generation of container vessel of only 500 TEU in the late 1990s, and the 2000 TEU ships (the Mid Panamax” 2000-3500 TEU) now operating though on most routes, is completely transforming the maritime transport.

The next generation of container vessels will be bigger and plans have even been conceptualized for vessels of 22,000 -24,000 TEU. These big container ships, with a width of around 60 meters and a length of about 400-450 meters, are going to force the construction of mega hub ports.

In Africa a very limited number of ports can expect to emerge as regional hub ports as long as they can attract more transshipment traffic. The absence of hub ports along the African coasts is one of the reasons for the high costs of maritime transport.

Other ports previously served on trunk maritime routes will become feeder ports, i.e. serviced by feeder services operating between regional hub ports and these feeder ports either in the same country or neighbouring or nearby countries that do not have the level of traffic to become a regional hub port. These feeder services are more costly because they include the cost of transshipment in the hub port, and support higher unit costs because feeder vessels are smaller. In addition transit time is increased, depending on the scheduling of the feeder services.

Higher unit cost and longer transit times have negative consequence for land corridors that are connected to these feeder ports rather than regional hub ports.

4.3.2 Port Requirements

Ports play a fundamental role as gateways for any country wishing to successfully engage in international trade. They also provide a wide range of support services both regulatory and operational, especially in handling the transfer of goods between sea and land transport systems, between the maritime and land part of a trade corridor.

One of the major challenges for container ports is the upgrading of facilities to cater for the increase in vessel size and the corresponding pressure to provide adequate facilities to ensure quick turn-round of the container vessels through efficient cargo handling operations. This has a critical impact on port development in connection with land and capital requirements.

Ports do not necessarily need longer berths, unless they want to cater for multiple ships simultaneously, but they will need deeper access channels, wider turning basin, more pilotage facilities, strengthened quays, larger storage areas and more sophisticated terminal operating system within the port. Hence the key limitation on development is not just financial, but spatial too.

Savings in cargo movement are highest when cargo is not consolidated or broken in the port (de-stuffing containers). Indeed de-stuffing costs are as high, or even higher, than those of handling conventional break-bulk.

Port planning needs to be part of an integrated transport network within a regional coherent development plan, as there is a close relationship between the existence of adequate port facilities and prospects for economic development.

Successful intermodal transport requires streamlined customs procedure and documentation flow. Many African ports retain time-consuming customs inspection and complicated documentation resulting in longer than necessary dwell times for containers.

4.3.3 Land Transport Systems

Rail transport

The introduction of intermodal transport allows railways to maximize its advantages in transporting containers from or to seaports, especially when the concentration of containers at the port permits the building of modern railway and the establishment of unit trains for trunk hauls. However, such a unit train system requires regular cargo flows and a minimum level of traffic.

Inland waterways transport

Demand for speed in container movement and the rather negative image of inland waterways vessels as a slow and unreliable mode of transport (as far as respect to schedules) appeared to be too contradictory for the viability of waterways transportation to be even considered.

Road transport

Roads constitute, in Africa, the backbone of the transport systems. Road has also played a decisive role in the development of most countries, by creating networks more easily than other modes of transport and consequently to promote balanced regional development.

The relationship between road and other modes of inland transport can be both substitutionary and complementary: on trunk haul, the different modes of transport might compete with each other, while road transport will usually complement other modes for the distribution or collection of cargo to/from consignees/consignors not directly connected to rail or inland waterway transport.

4.4 Criteria for the choice of transport modes

4.4.1 Transport costs

It is possible to establish a general relationship between the costs of the different modes, based on the principle that the cost of each mode includes different proportions of fixed and variable costs in the total costs of each mode.

A high proportion of fixed costs, which have to be equally absorbed by short or long distance hauls, characterize both railways and inland waterways. From this it follows that short hauls are relatively expensive.

Around two thirds of the total costs of road transport are variable, thus creating comparative advantages for short hauls. Road haulage is cheaper over short distances whereas rail and inland waterway transport are cheaper over longer distances.

If infrastructure costs of road transport are taken into account, the effect on the ratio of variable to fixed costs will depend on the method of collecting user charges. If they are charged as a lump sum in the form of vehicle tax based, the fixed cost will increase, but if charged as fuel tax or road toll, variable costs will account for a higher proportion.

4.4.2 Energy saving

One important objective of the transport sector is to increase its sustainability by reducing its dependency on fossil fuel. Energy savings of rail over road transport may range from about 25 per cent to about 55 per cent of road fuel consumption.

A growing sense of awareness of environmental problems has made it necessary to reconsider inland waterways transport as a means of carrying general cargo and containers. As in the case of rail transport, it can be safely expected that the competition of waterways transport will increase with the distance involved.

4.4.3 Modal Split

Inland transport of containers offers the ideal conditions for a complementary relationship between road and rail or road and inland waterways transport respectively. With such a system, the trunk line movement of container would be left to the more cost effective modes, i.e. rail and inland waterways while pick-up and delivery services would be performed by road.

Such a modal split in the carriage of containers can be in line with an optimum allocation of scarce resources for investment in infrastructure. Limited availability of resources necessitates a government policy to ensure optimum use of existing infrastructure and transport systems to the extent that railway lines or inland waterways can offer the required transport capacities.

4.5 Policy, Planning and Investment Requirements

An international planning approach has to be taken to avoid bottlenecks at frontiers caused by time, space and quality gaps in the infrastructure of individual countries.

Intermodal transport of containers requires coherent and comprehensive transport policies to ensure optimum use of existing and new investments. This calls for coordination of investment policies between the national authorities that decide on infrastructure investments. However, in most African countries, decisions to plan and develop infrastructure are generally decentralized across levels of governments, leading to a lack of coordination in the development of road, rail, inland waterways and transport terminal facilities, and this restricts the achievement of potential economies of scale in transport services.

Regulations, tariffs and user charges should not unduly hamper container transport by mode, as this could also lead to under-utilization of existing infrastructure or to over investment in new infrastructure.

The financing of international infrastructure projects is a pressing problem for international container transport. If the infrastructure is to be used mainly for transit trade, the country of transit may be unable or unwilling to finance such costly infrastructure. In such a case the transiting country may have to make a financial contribution. It will be desirable to draw up guidelines at a regional level on international cooperation in infrastructure investment financing and on the levying of user charges in international transport.

The introduction of multimodal transport based on the door-to door transport of containers also requires appropriate physical infrastructure for the handling and positioning of containers at inland ports.

The establishment of inland container depots (ICD's) permits consignments to remain unbroken from a place close to the consignor to a place close to the consignee. This advantage accrues not only to LCL shipments but also to FCL shipments in cases where customs clearance and inspection is not taking place at the consignee's premises. The establishment of ICD's is of vital importance for landlocked countries wishing to improve their transport services through the introduction of intermodal/multimodal transport and containerization.

4.6 Multimodal Transport Services

With multimodal transport, the carrier organizing the transport takes responsibility for the entire door-to-transport and issues a multimodal transport document. Multimodal transport means the continuous supervision and responsibility under one single operator for the entire door-to-door transport operation from the shipper's place to the consignee's place, by the most efficient and cost effective means, to meet the shippers requirement of delivery. Such carriers, responsible for the entire carriage, are generally referred to as **Multimodal Transport Operators (MTO's)**. Acting as principals and not as agents, the MTO is liable (in a legal sense) for the entire door-to-door transport, even though it is performed by several different modes of transport (by rail, sea and road,).

4.6.1 Multimodal Transport Operators (MTO's)

Multimodal transport is a service innovation by which the MTO assumes a contractual responsibility to move goods for a whole journey, for an agreed price with possibly a time limit for the delivery. This demand for integrated services has resulted in a continued development of door-to-door transport. The MTO provides all the transport logistic services from handling, warehousing, transportation, customs clearance until the final destination. He organizes a transport chain over which he has full control, selecting the most suitable transport modes and interface combinations.

Where there are alternative routes, including modal combinations, the MTO will choose in some case the one route, which is the fastest over the entire length of the corridor. Where one service might be faster over certain segments of the route, but not over other segments, the MTO might choose a combination of these segments in order to get the best solution for cargo movement through the corridor.

4.6.2 Need for an African multimodal transport industry

The development of international Multimodal transport has put competitive pressure on the local African fragmented freight forwarding industry. At the same time, the development of Multimodal transport could provide new opportunities for the African transport industry. Africa needs to be aware of the potentials benefits that can be derived from multimodal development and door-to-door transport, and react accordingly.

With the proper institutional and legal framework and with the appropriate awareness of trade and transport related administrations, African transport operators can enter the worldwide market of international transport.

4.6.3 Need for an African Multimodal transport regulation

Current legal frameworks in Africa fail to appropriately reflect the development of door-to-door transport, under one contract and with one party bearing contractual responsibility.

Without a robust legal framework for the establishment of MTOs (licenses, etc.), it will be much harder for African small or medium transport providers to access to markets and participate in international trade. Such providers need to be authorized to issue multimodal transport documents accepted by local and international banks and be entitled to proper liability insurance coverage.

For these reasons common minimum trading standards for African freight forwarders and MTO's are required within an African framework of harmonized governmental regulations and commercial practices regarding the profession of the multimodal transport operator.

4.7 Key Issues for Multimodal Transport

- a) Legal frameworks conducive to multimodal transport operations are not evident in most African countries;
- b) Infrastructure planning needs to be better addressed to allow for the physical conditions for multimodal transport;
- c) There are no regulations for multimodal transport operators to ensure quality and security of services, although in a more mature market self-regulation is an option;
- d) There have been few feasibility studies to examine and promote multimodal transport and to identify transfer points, including inland container depots; and
- e) Policy, legal and regulatory developments must involve the private sector as key stakeholders.

4.8 Recommended Policy Measures for Multimodal Transport

- 1) Continued commitment to liberalization of the transport sector as the condition to stimulate competition and enhance the role of national transport providers in Africa;
- 2) Institutional and legal framework to harmonize governmental regulations and commercial practices regarding the profession of "multimodal transport operator" should be drafted, adopted and implemented;
- 3) Common African minimum trading standards conditions for MTOs should be established

- 4) Transport infrastructure developments should be planned with increased attention to the needs of the transport industry so as to serve the national economy more effectively and to create an appropriate environment for the development of multimodal transport in Africa;
- 5) Institutional, regulatory and operational environment for transport services providers should be fostered in order to stimulate the provision of commercially viable transport services;
- 6) National legislation to regulate multimodal transport and to provide legal framework for the establishment and development of a private sector of local MTOs should be introduced;
- 7) Comparative analysis to investigate to which extent a transfer of cargoes towards rail, inland waterways and short sea shipping could be beneficial for the environment should be undertaken;
- 8) Studies to define the most sustainable combination between ports, volumes of traffic and existing land transport network and the most promising ones in line with the countries' development plans should be undertaken; and
- 9) National Trade and Transport Facilitation Committees (NTTFC) should be established in each Member States.

5. Key policy recommendations by strategic objectives

5.1 Reduce transport costs

- Improve quality of infrastructure;
- Liberalize transport services (trucking and air transport) and eliminate monopolies;
- Establish fair competition among transport modes (taxes, regulations etc.);
- Establish smart corridors to speed up traffic flows and eliminate paper documentation;
- Improve border crossing for road and rail transport;
- Modernize rolling stock;
- Built new modern infrastructure (hub ports, modern railways, hub airports);
- Eliminate abnormal practices; and
- Develop multimodal transport.

5.2 Improve connectivity

- Finalize the Trans African Highways;
- Link all the capital and large economic centres to ARTIN;
- Link rural area to ARTIN;
- Improve quality of transport infrastructure (good maintenance and modernization);
- Built hub ports and modern rail connections to landlocked countries;
- Built hub airports and modernize national airports; and
- Develop river transport.

5.3 Develop safety and security of transport services

- Establish national safety culture for the transport services;
- Implement efficient road safety systems;
- Improve air transport safety; and
- Develop and implement rail safety measures and regulations.

5.4 Develop sustainable transport services and reduce their impact on the environment

- Reduce production of Green House Gas (GHG) and reduce impact on environment:
- Reduce pollution of road vehicles;

- Improve urban mobility;
- Modernize truck and bus fleets; and
- Improve trucks and passenger cars inspection mechanisms.
- Develop the use of less polluting transport modes;
- Develop efficient public transport services (light train, metro, modern buses etc.);
 - Develop modern and energy efficient rail transport services; and
 - Develop river transport.
- Improve transport infrastructures;
 - Modernize road infrastructure by building by passes of towns and villages.
- Reduce consumption of fossil fuel:
 - Improve the energy efficiency of transport rolling stock;
 - Develop multimodal transport; and
 - Develop more energy efficient transport services:
 - Facilitate the development of rail and river services; and
 - When feasible develop electric rail services.

5.5 Implement Good governance in the transport sector

- Eliminate abnormal practices:
 - Develop efficient monitoring systems at country and regional levels; and
 - Prepare, approve, and implement appropriate regulations.
- Eliminate Truck overloading:
 - Develop efficient weighbridges; and
 - Implement appropriate regulations.
- Establish fair competitions among modes:
 - Ensure that all transport users pay the full costs for their transport services.
- Implement a fair taxation system;
- Eliminate tariff control;
- Develop and implement harmonized entry system for all modes of transport;
- Implement efficient systems for the maintenance of transport infrastructures, in particular for the road networks;
- Liberalize transport services;
- Develop modern and innovative financial mechanisms;

- The users should finance all maintenance costs.
- The contribution of Governments to the investment costs of transport infrastructures should be financed with the investment budgets;
- Innovative financing mechanisms should be implemented;
- The role of the private sector in the building, maintenance and management of transport infrastructures should be increased;
- Private operators should do the maintenance and modernization of roads along the corridors;
- The building, management and maintenance of rail infrastructures should be made by innovative financing mechanisms including the blending and the PPP, the States being responsible for the financing through soft loan of all investments having a longer depreciation period than the length of the concession and the private operators being responsible for all other investments;
- The countries should establish an enabling environment to attract private operators; and
- The role of the private sector in the management and operation of transport services should be developed.

ANNEX 1

Guiding Policy Principles

The Transport Policy Framework is premised on a wider set of guiding policy principles that the AU is committed to, encompassing economic growth, regional trade, planning and financing, impact on environment and gender, youth and disabled persons and serves as a foundation for the harmonious development of the policy within the sector.

Economic Growth: The AU is committed to accelerated, stable and sustained inclusive economic growth that: creates decent and productive employment that rapidly reduces inequality; nurtures sustainable social protection programmes; facilitates economic diversification; strengthens resilience to external shocks; and fosters rapid inclusive, resilient and sustainable socio-economic development leading to eradication of poverty. Within this objective are the four key target areas of i) sustainable agriculture, food self-sufficiency and nutrition; ii) diversification, industrialization and value addition; iii) development of the services sector; and iv) infrastructure development.

Trade: The AU is committed to the creation of a continental free trade area (CFTA). Currently, Africans trade only 12% of their merchandise among themselves and there is an urgent need for the continent to come together and establish one African Free Trade Area. The continental free trade area will bring about an enlarged market that facilitates economies of scale and promotes harmonization and coordination of trade instruments. The continental free trade area will also help to resolve the challenge of multiple and overlapping memberships of regional economic communities and to improve regional infrastructure and interconnectivity. Trade-related infrastructure is key to the implementation of the CFTA. The AU is clear that infrastructure has to be the priority and without it, trade between African countries will never be improved.

The export of primary products has contributed to growth in Africa. However, the continent is still dependent on exports of raw commodities, which deepens the fragility of its economies. The AU supports change through a process of commodity-based industrialization that makes systemic use of regional integration, especially intra-African trade. Particularly important in this regard are regional value chains, better negotiation of international trade agreements and trade finance. The AU believes that Africa should invest more resources into the production of higher value-added goods, which are globally more competitive and also capable of boosting the volumes of intra-African trade.

Planning for Development: The AU believes that proper planning and measurement of development outcomes requires adequate capacity for production of high-quality statistical information and data. Africa should generate its own data to enable it to better monitor and track economic and social targets, including the goals and objectives of Agenda 2063. In this regard, The AU underscores the importance of strengthening existing pan-African statistical institutions, as well as other similar institutions to support the implementation of the first ten-year plan of Agenda 2063.

Co-ordinated planning: The AU recognises the importance of harmonizing national, regional and continental development plans in the context of Agenda 2063. There are commonalities existing between certain national plans and Agenda 2063. It is now important to leverage continental frameworks articulated under the New Partnership for Africa's Development Planning and Coordinating Agency, such as the Comprehensive Africa Agriculture Development Programme, the Accelerated Industrial Development in Africa action plan, the Africa Mining Vision, the Boosting Intra-African Trade initiative, the Programme for Infrastructure Development in Africa (PIDA) and the Social Policy Framework for Africa. The coordinated implementation of these frameworks will be instrumental in achieving Africa's structural transformation objectives.

Financing: The AU is aware that adequate and predictable financing is indispensable for the successful implementation of development plans and strategies. While official development assistance has been helpful, it is a fragile platform on which to base a structural transformation agenda. Agenda 2063 needs to be anchored on domestic resource mobilization, through effective tax policies, savings mobilization, and the use of other financing mechanisms such as pension funds, sovereign wealth funds, diaspora bonds and remittances, as well as participation of the private sector. The AU policy encourages African central banks and pan-African institutions to increase their support for efforts to boost the continent's socio-economic transformation and its' financing.

ICT: The AU has adopted a reference framework for harmonization of the telecommunication and ICT Policies and Regulation in Africa. The aim is to develop a strong, integrated and viable communications sector on the continent. The key objective is the establishment of harmonized policy, legal and regulatory frameworks at the regional and continental levels to create an enabling environment that will attract investment and foster the sustainable development of competitive African Telecommunication/ICT regional markets, infrastructures, and to increase access of people and services.

Macro-economic planning: The AU encourages member states to articulate credible macroeconomic frameworks that can underpin the planning process. Infrastructure development initiatives can then help to boost production capacity, reduce transaction costs and promote structural transformation.

Harmonisation of Regulations: The AU supports policies for the harmonization of laws, rules and regulations at the national, regional and continental levels because they greatly contribute to create an enabling environment to regional integration.

Environment: Africa is the region in the world most affected by greenhouse gas emissions, even though it generates the fewest of such emissions and has the weakest capacity to adapt to their effects. The adoption of science-informed and evidence-based policy, planning and practices is required to make African development sustainable, more resilient and less vulnerable to the negative impacts of climate variability and change. The AU will support means of integrating sustainable development into development and planning processes, with the ultimate goals to include enhanced access to transport,

lower levels of air pollution and greenhouse gas (GHG) emissions, and improved road safety and health.

Gender and Youth: The vision of the AU is an African society founded on democracy, gender equality, human rights and dignity and recognizes the equal status of women and men, girls and boys, with both sexes thriving together harmoniously, in a peaceful and secure environment characterized by equal partnership in decision-making in the development of the Continent. The policy goal is a rights based approach to development through evidence-based decision-making and the use of sex-disaggregated data and performance indicators for the achievement of gender equality and women's empowerment in Africa. It seeks to promote a gender responsive environment and practices and undertake commitments linked to the realisation of gender equality and women's empowerment in Member States, and at the international, continental, regional and national levels. The AU has also dedicated itself to accelerate efforts to reduce unemployment and under-employment of Africa's Youth and Women.

ANNEX 2

Tentative list of priority policy measures to be approved by the Heads of States:

- a. Liberalize transport services, establish fair competition among modes and harmonize the conditions of entry for the management and operation of the sector.
- b. Develop, modernize and improve infrastructures and transport services along the corridors and the TAH.
 - i) Finalize the construction of the TAH and modernize infrastructures along the corridors by using the approved roads' norms and standards;
 - ii) Update and implement the 24 PIDA-PAP transport programs and strengthen the approved institutional framework in order to speed-up the implementation of PIDA;
 - iii) Improve connectivity between capitals and important economic centres by road and railways;
 - iv) Call on the private sector for the maintenance and operation of infrastructures;
 - v) Establish or strengthen CMI and Implement smart corridors; and
 - vi) Develop regional hub ports and modern rail services.
- c. Develop sustainable and environmentally friendly transport services.
 - i) Assist in reducing the production of greenhouse gas (GHG) significantly by 2050 and reduce impact of the transport sector on environment;
 - ii) Reduce consumption of fossil fuel;
 - iii) Prioritise the development of efficient public transport systems in urban areas in conjunction with car restraint measures and Traffic Management, where appropriate;
 - iv) Implement transport infrastructure taking into account the impact of climate changes.
- d. Develop multimodal transport.
- e. Develop and implement a transport safety culture for all modes of transport.
- f. Improve the governance of the transport sector.
 - i) Eliminate abnormal practices;
 - ii) Eliminate overloading;
 - iii) Enhance security; and
 - iv) Develop modern and innovative financial mechanisms increasing the role of the private sector in the modernization and management of infrastructures and in the management and operation of transport services.
- g. Improve overall capacity and efficiency of transport staff and relevant institutions for the planning (in particular to enhance and promote project preparation and related facilities to arrive at bankability status of projects), management, operation and monitoring of the efficiency of transport infrastructures and transport services.

ANNEX 3 African Regional Transport Infrastructure Network (ARTIN) corridors: PIDA Priority Corridors & Other Corridors

ID	Corridor	PIDA Score	Ranking
S4	Maputo	80	1
E3	Northern	76	2
S3	Beira	73	3
E1	Djibouti	67	4
S5	North-South	66	5
W6	Abidjan-Lagos (Coastal)	65	6
W2	Dakar-Bamako-Niamey	63	7
S1	Dar es Salaam	61	8
W1	Nouakchott-Dakar (coastal)	59	9
C1	Douala-N'Djamena/Bangui	58	10
E4	Central	58	11
S7	Trans-Caprivi	56	12
W5	Abidjan-Ouagadougou/Bamako	54	13
S2	Nacala	53	14
S8	Trans-Cunene	52	15
N1	Trans-Maghreb (Coastal)	51	16
W7	Tema-Ouagadougou	51	17
C3	Pointe Noire-Lubumbashi	49	18
S6	Trans-Kalahari	49	19
W8	Lomé-Ouagadougou	47	20
W4	Praia-Dakar-Bissau-Monrovia-Abidjan (Coastal)	45	21
W9	Cotonou-Ouagadougou/Niamey	45	22
C2	Libreville-Brazzaville	43	23
E2	Addis-Tunduma	42	24
W3	Bissau-Bamako Southern	40	25
E	Arusha	None	26
C	Bas-Congo	None	27
E	Lamu/LAPSET	None	28
S	Limpopo	None	29
S	Lobito-Benguela	None	30
S	Malange	None	31
S	Manziri-Durban	None	32
S	Maseru-Durban	None	33
S	Mtwara	None	34
S	Namibia	None	35
S	Richard's Bay-Phalborwa	None	36
S	Trans-Orange	None	37
E	Massawa Corridor	None	38
E	Port Sudan Corridor	None	39
W	Abidjan-Yamoussoukro-Ferkessedougou-La Ouagadougou- Kantchari- Makalondi- Niamey	None	40
W	Cotonou-Malanville-Niamey-Gao	None	41
W	Cotonou-Tindangou-Ouagadougou-Hérémakono-Bamako	None	42
W	Lomé-Cinkansé-Koupéla-Kantchari-Makalondi-Niamey-Gao	None	43
W	Dakar-M'Pack-Bissau	None	44
W	Bissau-Pirada-Tambacounda-Kédougou-Kita-Bamako	None	45
W	San Pedro - Odienné - Bougouni-Bamako	None	46
W	Abidjan - Bouna-Gaoua-Pa-Ouagadougou-Niamey	None	47

Note: N= North Africa, W= West Africa, C=Central Africa, E=East Africa, S=South Africa

ANNEX 4 Ports linked to PIDA ARTIN surface transport system

	Country	ARTIN Port
1	Algeria	Oran
2	Algeria	Alger
3	Algeria	Bajaia
4	Tunisia	Bizert
5	Tunisia	Rades
6	Tunisia	Sfax
7	Tunisia	Gabes
8	Libya	Tripoli
9	Libya	Benghazi
10	Libya	Misratah
11	Morocco	Casablanca
12	Morocco	El Jorf-Lasfar
13	Morocco	Safi
14	Mauritania	Nouadhibou
15	Mauritania	Nouakchott
16	Senegal	Dakar
17	Gambia	Banjul
18	Guinea-Bissau	Bissau
19	Guinea	Conakry
20	Sierra Leone	Freetown
21	Liberia	Monrovia
22	Ivory Coast	Abidjan
23	Ghana	Tema
24	Togo	Lome
25	Benin	Cotonou
26	Nigeria	Lagos
27	Cameroon	Douala
28	Equatorial Guinea	Malabo
29	Sao Tome	Sao Tome
30	Gabon	Libreville
31	Egypt	Alexandria
32	Egypt	Damietta
33	Egypt	Port Said
34	Egypt	Port Suez
35	Sudan	Port Sudan
36	Eritrea	Massawa
37	Djibouti	Djibouti
38	Somalia	Mogadishu
39	Kenya	Mombasa
40	Kenya	Lamu
41	Tanzania	Dar es Salaam
42	Tanzania	Mtwara
43	Mozambique	Maputo
44	Mozambique	Beira
45	Mozambique	Nacala
46	South Africa	Richards Bay
47	South Africa	Durban
48	South Africa	Port Elizabeth
49	South Africa	Cape Town
50	South Africa	Saldan Bay
51	Namibia	Walvis Bay
52	Congo	Pointe-Noire
53	Angola	Luanda
54	Angola	Lobito
55	DR Congo	Matadi
56	Madagascar	Toamasina