

**International Conference On Ethiopia 2050
Grand Challenges And Opportunities
December 19-20, 2019
THE SKYLINE HOTEL, ADDIS ABABA ETHIOPIA**

Transport Infrastructure
Opportunities, Challenges and Key Questions in
the Way Forward
Teferra Mengesha

W.T Consult PLC

☎ 011-553-47-39/011-553-41-23

Fax 011-553-40-88 ✉ 18912

E-mail: wtefera@gmail.com

Addis Ababa, Ethiopia

STRUCTURE

1. Introduction

- Purpose
- Limitations

2. Transport infrastructure

- Diverse characteristics
- Extent of Network
- Key performance measures

3. Future Drivers

- Key questions – uncertainty (scenarios) – Three decades
- Macro factors
- Technological factors
- Environment and climate change response
- Liberalization – aviation (domestic)
- Scope for intermodality, and improved logistics
- Regional and Global integration

4. Major challenges

➤ Modal

- Roads
- Railway
- Aviation
- Urban mobility/ transport
- Connection between Ethiopia and Sea ports/ neighboring countries

➤ Sectoral

- Inter-modalism
- Financial sustainability
- Private sector participation
- Environmental sustainability
- Safety
- Technological adoption

5. Key Questions

1. Introduction

1.1 Purpose of presentation

- To highlight key trends in performance
- To identify key opportunities and challenges
- To improve understanding of the focal areas that could shape the policies and plans that ultimately influence changes.
- To raise questions – to cooperatively identify possible solutions – “inform policy design”

1.2 Basis of the presentation

- Sector performance reports
- Lessons – international experience and comparisons

1.3 Main limitations

- Shortcomings in systematic and analytical approach
- In-depth performance analysis lacking
- Gaps in forecasting future context
- Weak inter-sectoral linkages.

2. Transport infrastructure

2.1 Transport infrastructure defined herein includes Roads, Railways, Airports, Seaports/maritime and Pipelines

2.2 Diverse Characteristics

- Multi-modal
- Multi-sectoral
- Multi-problem

2.3 Macro and micro effects

2.4. Ethiopia's Transport Infrastructure and Key Performance

a) Road Network

- Overall length of road network about 122,000 kms (2017/18)
- Density (110.7/1000km² and 1.26 kms/1000 population.
- Increased nearly five fold over two decades. Yet, this density is too low compared to averages for South Asia and Europe, and upper Middle Income countries, for the latter at about 2000 Km² (IRF).
- Largest portion of about 93,000 kms (over 75 percent) consists of regional and rural access roads.
- The density of expressways is especially low, with only about 250 kms, consists of only two six-lane and four-lane highways.
- Only 17 percent of network bitumen-surfaced, compared to 60% In high middle income countries (IRF).
- Although road network condition has been improving, recent evidence and pace of increase in mobility (vehicle-kilometers travelled) indicate need to accelerate asset preservation interventions.
- Road safety: high fatality and injury rates (over 5,000 deaths per year).

b) Road Network Expansion and Key Aggregate Economic and Transport Variables

- Annual growth rate of GDP over five years between 7.7 percent and 10.4 percent (National Planning and Development Commission)
- Progressive increase in road network –close to 12 percent between 2011/12 and 17/18
- Operational motor vehicle fleet gone up by an annual average of 14 percent during the same period.
- As a “reasonably” acceptable measure of road transport demand Average Annual Vehicle Kilometer Travelled had risen by more than ten-fold over two decades.

d) Railway Network

- The standard gauge Addis – Djibouti railway (main tracks of 766 kms – 656 kms in Ethiopia).
- Another rail link under construction Kombolcha – Mekelle
- Total network to be developed –5,000 kms

d) Airports/Aviation

Basically two international airports

- Addis Ababa and Dire Dawa
- Over five years, international aircraft movement and passenger traffic at Addis Ababa international had risen by 8.8 percent and 13 percent per annum between 2011/12 and 2018/19 respectively

18 (Eighteen) Domestic Airports

Key performance measures

i. Aircraft movements

- international had increased by 8.8 percent between 2011/12 to 2018/19
- domestic flights–increased by over 33 percent per annum between 2011/12 and 2018/19 (more than eight–fold increase)

ii. Passenger Traffic

- International – two– fold increase between 2011/12 and 2018/19
- Domestic – six – fold increase (2011/12 to 2018/190)

iii. Cargo Traffic

- International – over 7 percent increase per annum over 8 years
- wide variation in aircraft movement and passenger traffic between domestic airports.

e) Ethiopia's Connections to Sea Ports and Sub Region

i. Connections to Sea Ports

- Ethiopia's landlocked status, raising the cost of freight transport.
- In 2017/18, Ethiopia generated close to 15.2 million metric Tons (net weight) of maritime import cargo and 1.2 million metric tons of maritime export cargo, (six-fold and over four-fold) over ten years.
- To accelerate external trade, and develop infrastructure for containerized sea and land transporalic, and minimize the cost sea and land transport would be critical.

- Point of interest is not the ports themselves, but connections to them.
- Ports that could potentially serve Ethiopia's external trade movements
 - ▶ Djibouti, Massawa, Asseb, Berebera Port Sudan, Mombassa, Mogadishu, Lamu and Zeila.

▪ How to Optimize use of Ports

- Distance might not be the only determining factor
- Travel time and cost – the land and sea interface critical
- A range of road connections/Routes (About 25) to the ports
- Trade logistics is critical and easing of trading across borders
- Djibouti currently handles about 90 percent of Ethiopian Cargo.
- How to evaluate port competitiveness is a key issue (berths, equipment, terminal area, and handling capacity, traffic volume, cost, etc...)

ii. Land Transport connections to Sub-Region (Integration)

- Good progress in inter-state road links
- African Union Agenda 2063 and the Program for Infrastructure Development in Africa (PIDA), the Transport Policy Framework (white Paper for the African Continent) and Agreements under COMESA provide directions.
- Bridging the infrastructure gap-together with improved technology.

f) Urban Transport Infrastructure

- Urban population likely to trippl by 2050
- Interaction between the urban activity system and transport infrastructure (complex and interdisciplinary)
- Extensive urban bus and mini-bus network in Addis Ababa
- Importance of Different modes to serve diverse demands (spatial and temporal dimensions) – The Quantification of the relationships as useful tool for policy makers (considering viable choices)
- Trends in congestion

- Types of urban spatial structures in Addis Ababa
- Transportation Technology choices– Transit system operation, service and characteristics
- Influence of Right – of– Way
- Global evidence of fast – growing medium sized cities – less than 1 million inhabitants in Africa – Asia How to Respond.

3. Future Drivers

- Macro Factors
- Micro Factors
 - Technological factors
 - Environment and Climate change
 - Liberalization particularly in aviation
 - Public–private Partnership and other methods of financing
 - Scope for inter–modality and improved logistics
 - Regional and global integration

4. Major Challenges

4.1 Roads

- Low levels of rural accessibility
- Capacity constraints–main links
- Low percentage of paved roads
- Assets Preservation
- Road Safety
- Urban road network–gaps in hierarchy and function

4.2 Railways

- Rationale and financial viability (traffic)
- Pace and Scale

4.3 Aviation/Airports

- How to respond to low density demands

4.4 Sea Ports

- Criteria for optimizing use

4.5 Inter-Regional Connectivity

- Understanding of external trade movements (demand) and search for optimum transport infrastructure solution

4.6 Urban Transport

- Gaps in understanding transportation design effects on urban activity system (the interaction)
- Facilities such as parking, terminals, loading–unloading etc. do not receive sufficient attention
- Choice of technology (How to develop a combination of options and promote integration)

4.7 Environmental Sustainability and Climate Change Response

5. Questions Related to the Way Forward

- ❖ Ethiopia's vision for transport infrastructure in 2050
- ❖ Shift from physical infrastructure output to service/user related outcomes
- ❖ Allocation of investment for transport and the Different Modes
- ❖ Balancing priorities for:
 - Improving Accessibility
 - Improving quality upgrading
 - Addressing capacity constraints
 - Bridging integration challenges at sub-regional and regional levels
 - Supporting external trade-reducing transaction costs

- ▶ Combination of public transit systems in Addis (choice–viability)
 - including underground urban commuting in Addis.
- ▶ Freight transport in Addis Ababa – low priority?
- ▶ Use of technology to improve traffic flow, delivery of public transport, enhancing safety and utilization of infrastructure.
- ▶ Appropriate technologies for rural transport – international lessons
- ▶ Financing and financial sources / methods
 - (to reduce dependence on public budget)
 - PPP, Cost recovery, etc...

- Responding to environmental issues and climate change
- Optimizing the use of sea ports
- The coordination of urban development and transport infrastructure
- Master Planning and control of land use
 - Planning of transport infrastructure
 - Traffic management

5. The Way Forward

a) Questions Related to the Way Forward

- ▶ Various studies have established that infrastructure's linkages to the economy are multiple and complex. Transport has been described by the well-known economist, Alfred Marshall as an all-pervading industry.
- ▶ This paper has been prepared under a tight, in response to the unexpected unavailability of the designated speakers at the Conference. As a result, well established practices have not been followed, such as citing references and effectively documenting analyses of trends in key sector performance indicators. It should be noted that data has been extracted from previous studies, performance reports and statistical evidences produced by the Ethiopian Civil Aviation (EAL) and the Airports Enterprise, the Transport Authority and various public and private sector institutions.

b) Possible Guiding Principles

- ▶ In the way forward, it is proposed that:
- ▶ Public policy framework should be tailored to promote sustainable transport infrastructure development with a paradigm shift towards customer-oriented efficiency outcomes, central to which is asset management;
- ▶ The formulation of transport infrastructure program focus on trans-sectoral linkages and the promotion of modal integration, combining regional and federal level interests and priorities, while enhancing environmental and social impacts and climate change response;

- ▶ Technological change becomes an important component of the formulation of an Transport Infrastructure Development Plan, to improve the utilization of facilities and road safety;
- ▶ Private Sector Participation (PSP) and Public Private Partnership (PPP) be considered as key instruments of financing major transport infrastructure to reduce the burden on the allocation of public funding, and external borrowing;
- ▶ Improve institutional framework by making transport sector agencies results-oriented and promote the efficiency and transparency of contractual practices, in the framework of “multi-level governance” perspective;

- ▶ Sufficient attention be given to the interaction between urban land use and transport infrastructure and efficiency of traffic management for reducing congestion impacts and improving the walking and cycling environment, as part of balanced approach to transport development;
- ▶ Transport infrastructure development becomes an integral part of logistics, and global and domestic supply chain to promote competitiveness;
- ▶ The development of rural transport infrastructure be facilitated in relation to the improved delivery of appropriate transport services to meet diverse needs and conditions; and
- ▶ Monitoring and evaluation of transport infrastructure performance receive sufficient attention, to provide feedback of information to decision-makers, as part of good governance practice.

Thank you