

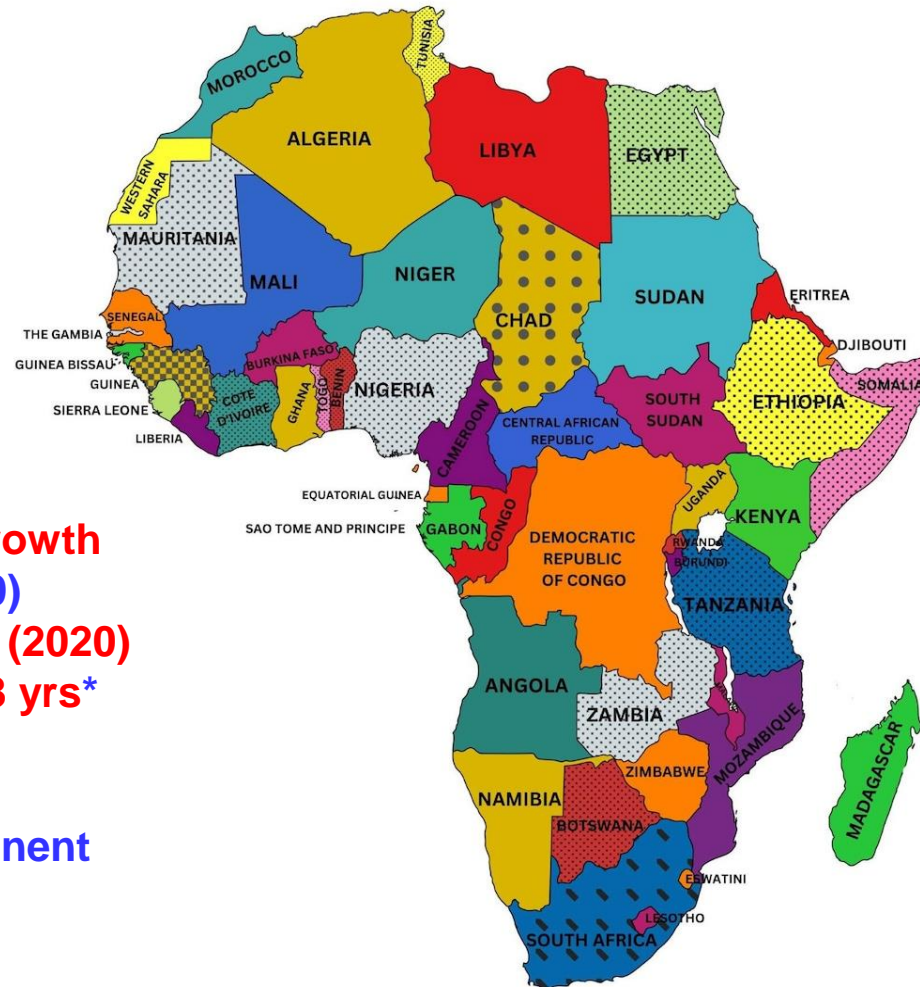


Sub-Saharan Africa Managing Traffic w/ ITS

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AFRICA



Pop: 1.4 billion
2.5% / yr growth
(2.5 billn by 2050)
Fertility rate: 4.4 (2020)
Median age: 18.8 yrs*
Urban pop: 44%

*** Youngest continent**

Source: Statista.com

Road Traffic Deaths
27/100,000-Highest in the World

I. Root Causes

Transportation Issues in Sub-Saharan Africa

- ▶ Rapid Population Growth (2.7% / year)*
- ▶ Rapid Urbanization (4.5% / year)
- ▶ Growth in # of Vehicles (w/ Middle Class)
- ▶ Poor Infrastructure (Roads & Public Transport)
- ▶ Many African countries are landlocked
- ▶ Regions are not well connected
- ▶ Policy Issues (Lack of effective Nat'l Transport Programs)
- ▶ Lack of Strong Institutions
- ▶ Low Capacity (Skilled Manpower in Transport Mgmt. & Technical Knowhow)

II. Major Transportation Issues in Urban Africa

- ▶ Traffic Congestion
- ▶ Lack of effective Traffic Control & Management
- ▶ Adverse Environmental Impacts from congestion
- ▶ Safety - Frequent Accidents
- ▶ Ineffective Safety Measures (Standards)
- ▶ Inefficient Public Transportation Systems
- ▶ Poor Coordination among stakeholders
- ▶ Barriers between states at borders
- ▶ Very high logistics & transport cost

III. Emerging ITS Programs in Sub-Sahara Africa:

- ▶ ITS Nat'l Policy & Program Development
- ▶ **Mobility**–Managing Traffic & Congestion
- ▶ Traveler Information
- ▶ Safety & Incident Mgmt.
- ▶ **Public Transport**–Access, Efficiency & Reliability
- ▶ Toll Systems
- ▶ **Freight**–Need for Efficiency & Cost Effective Logistics
- ▶ **Environment**–Green Growth & Air Quality (**Smart City**)
- ▶ **Network Integration**-Multi-Modal Transport Systems
- ▶ Regional Coordination

III-A ITS in South Africa:

- ▶ **South Africa** has the most advanced ITS Program in Africa
- ▶ Has well developed National ITS Program/Policy
- ▶ Three institutions play key role in the Nat'l ITS Program
 - ❖ S. Africa's Ministry of Transport
 - ❖ SANRAL (S. African Nat'l Road Agency Limited)
 - ❖ ITS South Africa
- ▶ South Africa is a pioneer in ITS & ETC applications (including ORT)
- ▶ The Public Transportation Systems (BRT, Rail & Taxis) use ITS
- ▶ ITS South Africa is well connected w/ the Int'l ITS Community

Open Road Tolling (ORT) – South Africa



BRT Bus (“Rea Vaya”) - Johannesburg - South Africa

ITS - fully deployed on the BRT System



III-B ITS in Nigeria:

- ▶ **Nigeria** has the largest population in Africa (est. 220 million);
w/ 2.4% growth
- ▶ Lagos is Megacity, with population of 16 million, and growing fast
- ▶ Informal Transport Systems (Minibuses, Taxis etc) dominate the Network
- ▶ Lagos is investing on Integrated Public Transport Systems to meet the big demand (including Rail, LRT, BRT, Ferries and Trams)
- ▶ The first BRT in Africa was introduced in Lagos (2008)
- ▶ Nigeria is also building major highways, with Toll Systems, across its states
- ▶ ITS was introduced a few years ago, primarily in the Public Transport Sector
- ▶ ITS on the BRT Line includes Traveler Info; Traffic Signal priority; Smart Ticketing, Scheduling, AVL, Safety & Security Systems
- ▶ A comprehensive National ITS Program & Policy is still needed
- ▶ ITS Nigeria (established in 2010), lobbies for ITS expansion in Nigeria

Traffic Jam in Lagos, Nigeria



Lagos - BRT – Nigeria

ITS systems are deployed in Buses and Routes



III-C ITS in Ethiopia:

- ▶ Addis Ababa (Capital City) has over 5 mill Pop; w/ 4% / yr growth
- ▶ Addis-Adama Expwy (the first in the country) opened in 2014
- ▶ The Expwy has ITS & Toll Systems deployed
- ▶ ITS Systems include TMC, VMS, CCTV, Weigh-in-Motion, Speed Detection and Incident Mgmt.
- ▶ A new Highway (Modjo-Hawassa) is under construction
- ▶ The Highway is planned to include various ITS systems & TMC, (with ATMS, ATIS, Incident Mgmt and Toll Systems)
- ▶ A Nat'l ITS Strategic Plan is developed, but not fully implemented
- ▶ An ITS Program is underway for Addis Ababa
- ▶ ITS Ethiopia <https://itsethiopia.org> was established in 2014

Addis-Adama Expwy - Ethiopia

ITS & Toll Systems partially deployed



Addis Adama Expwy Toll Plaza Ethiopia



Addis-Adama Expwy - TMC

Basic Tolling & ITS Systems (CCTV, VMS) integrated



Addis Ababa City – LRT & Traffic Jam Need for TMC & System Integration is high



III-D ITS in Tanzania:

- ▶ Tanzania borders with 8 countries; border crossing delay is big issue
- ▶ Dar es Salaam, a port city, w/ over 6 mill. Pop. projected to reach 10 mill. by 2030 (WB). It is one of the fastest growing cities in Africa
- ▶ The City is very busy seaport, serving its land locked neighbors, as well
- ▶ It faces serious congestion and mobility challenges
- ▶ Undeveloped road network, growth in vehicles, lack of efficient Public Transport Systems are some of the challenges
- ▶ Dar es Salaam is heavily investing to improve the Transport Infrastructure
- ▶ 1st Phase of Dar es Salaam BRT opened in 2016; plan is underway for expanding the network
- ▶ ITS & AFCS (Auto. Fare Collection System) is deployed for the BRT.
- ▶ An ITS Project for Planning, Design and Construction (Syst. Integration) w/ TMC for Dar es Salaam and Metro Region is underway.
- ▶ The ITS Project includes a Nat'l ITS Program (ITS Strategic Planning)

Dar es Salaam - BRT - Tanzania

Planning underway to deploy ITS



Minibuses in Dar Salaam, Tanzania ("Dala Dalas")



IV. ITS Projects in Africa - Key Opportunity Areas

- ▶ Developing the Public Transport Systems - BRT
- ▶ Traveler Info; Traffic Control & Management
- ▶ Freight and Border Crossings (CVO applications)
- ▶ Safety Systems
- ▶ Toll Systems
- ▶ Capacity Building; ITS Trainings in Systems Integration, Project Mgmt. Best Practices & ITS Architecture
- ▶ Developing Nat'l ITS Program & Strategic Plan (Road Map)
- ▶ **Regional Integration (AfCFTA)***

* African Continental Free Trade Area

V. ITS Expansion in Africa–Favorable Trends

- ▶ **AfCFTA (Africa Continental Free Trade Area)**
- ▶ **Rapid Urban & Economic Growth in several countries**
- ▶ **Transport Issues seeking ITS solutions are prevalent**
- ▶ **ITS-Value Awareness is growing among Policy Makers**
- ▶ **Need for ITS solutions in Public Transport (eg BRT) is growing**
- ▶ **Partnership with Int'l development Agencies (like WB) is helping advance ITS (e.g. in Ethiopia & Tanzania)**
- ▶ **Large, growing, dynamic and technology savvy youth population**
- ▶ **Rapid growth of Smart Phones - ground for ITS Applications**
- ▶ **Growth in highway and Urban Transport Infrastructure**

VI. ITS Africa - Vision

(www.its-Africa.org)

- ❖ Establish an ITS Society for Africa, which will lobby, promote and advance deployment of effective ITS Programs in Africa;
- ❖ Expand ITS in Africa to support and contribute for building a safe, reliable, efficient and affordable multi-modal transportation system in the continent.

VII. ITS Africa Working Group - Background

- ▶ **Founding Members: Three ITS Africa Societies**
 - ❖ **ITS South Africa (www.itssa.org)**
 - ❖ **ITS Nigeria (www.itsnigeria.org)**
 - ❖ **ITS Ethiopia (www.itsethiopia.org)**
- ▶ **ITS Africa Working Group formed**
- ▶ **Draft Bylaw & Organ. Framework developed**
- ▶ **Awareness created through Int'l Networking**
- ▶ **Facing challenges, even though w/ good prospect for growth**
- ▶ **Needs Revitalization**
- ▶ **Interest to join ITS Africa from others is high**

**“Be sure you put your feet in the Right Place,
then Stand Firm.”**

Abraham Lincoln

Thank you for the Opportunity!

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