“The Importance of Efficient Rail Transportation Systems in Solving the Country’s Transportation and Economic Problems”

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As the Nigerian economy expands, the role of the transport sector will be critical to further development of the GDP.

Source: National Bureau Statistics – 2013 Rebased GDP
Overview of transportation and it’s role in an Economy

- Development is regarded as the improvement of the welfare of society through appropriate social, political and economic conditions.

- Expected outcomes are improvement in human capital (measured in income and education) as well as, infrastructures (utility, transport, telecommunications etc).

- The transport sector is an important component of the economy as a common tool used for fostering development.

- When transport systems are efficient, they provide **economic and social opportunities and benefits** that result in positive multipliers effects such as better accessibility to markets, employment and additional investments.
Overview of Transport Infrastructure Stock

Transport Infrastructure stock ($bn)

- South Africa
  - Air: 0.2
  - Waterway/Ports: 0.4
  - Rail: 0.5
  - Road: 0.8

- Nigeria
- Kenya

Nigeria lags behind in availability of transport infrastructure

<table>
<thead>
<tr>
<th>Key Metric</th>
<th>Nigeria</th>
<th>BRICS</th>
<th>Africa</th>
<th>Emerging Economies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Km road per 100 square km</td>
<td>21</td>
<td>21</td>
<td>40</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>4</td>
<td>30</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ø 44.40</td>
<td>Ø 7.50</td>
<td>Ø 21.33</td>
</tr>
<tr>
<td>Km of rail per 1 000 square kms</td>
<td>4</td>
<td>4</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>7</td>
<td>36</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ø 11</td>
<td>Ø 3</td>
<td>Ø 13</td>
</tr>
<tr>
<td>Air passengers per million people per annum</td>
<td>0.44</td>
<td>0.30</td>
<td>0.21</td>
<td>0.06</td>
</tr>
<tr>
<td></td>
<td>0.06</td>
<td>0.21</td>
<td>0.30</td>
<td>0.09</td>
</tr>
<tr>
<td></td>
<td>0.03</td>
<td>0.11</td>
<td>0.12</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ø 0.26</td>
<td>Ø 0.09</td>
<td>Ø 0.18</td>
</tr>
</tbody>
</table>

Ø- average
Overview of transportation and its role in an Economy

Socio-Economic Benefits of Transportation: Transport improvements usually increase the scale and scope of economic (mostly for freight) and social interactions (mostly for passengers).

<table>
<thead>
<tr>
<th>Direct</th>
<th>Capacity and efficiency</th>
<th>Indirect</th>
<th>Accessibility and Economies of Scale</th>
<th>Induced</th>
<th>Multipliers and Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Users</td>
<td>Time and cost savings (e.g. commuting). Income from transport operations</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Employers/Retail</td>
<td>Wider access to labor or customers. Rent Income. Goods and services to users.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Society</td>
<td>Improved mobility. Increased social opportunities.</td>
<td></td>
</tr>
<tr>
<td>Freight</td>
<td>Operators</td>
<td>Time and cost savings (e.g. deliverables). Income from transport operations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Customers</td>
<td>Productivity gains (time and cost savings). Rent income. Goods and services to operators. Wider range of suppliers and markets.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: ©1998-2014, Dr. Jean-Paul Rodrigue, Dept. of Global Studies & Geography, Hofstra University, New York, USA.
Transportation Challenges in Nigeria and it’s Effect on the Economy

**Urban Transportation and City Planning:** Government needs to set out a clear direction for the role of railway in the transportation system in order to better coordinate the services of different transportation modes for maximum impact.

**Inadequate transportation networks:** Congested roads and overworked highways, undeveloped alternative means of transportation are clear indicators of an inadequate transportation network in Nigeria.

**Weak regulatory Environment:** A need for stronger regulation, as well as, tracking and monitoring requirements.

**Infrastructure Maintenance:** Consistent maintenance and rehabilitation of transportation infrastructure and systems.

**Notable Points:**
- The Nigerian Transportation and logistics industry is currently strategically positioned to grow tremendously in the next four years according to various reports.
- However, issues like lack of infrastructure, insecurity, lack of skilled staff, and poor tracking and monitoring technology present threats.
The impact of transportation challenges on the Nigerian economy can be viewed in 3 dimensions:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Impact</th>
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<tbody>
<tr>
<td>Mobility</td>
<td>Reduced mobility of goods and passengers and the associated costs related to immobility.</td>
</tr>
<tr>
<td>Operational:</td>
<td>Decrease in the time and reliability performance of transportation infrastructure.</td>
</tr>
<tr>
<td>Geographical:</td>
<td>Lack of access to a wide market base. Another important geographical impact concerns the influence of transport on the location of economic activities.</td>
</tr>
</tbody>
</table>
History of Rail Transportation in Nigeria

- **Evolution of the Nigerian Railway System**

  - **1899**: Government Department of Railways commenced. First Railroad was constructed.
  - **1912**: Amalgamation of Lagos and Baro-Kano railways.
  - **1955**: By 1960 NRC had - 257 locomotives - 339 carriages - 3885 freight wagons Serving a population of about 21 million over a 3505 km route.
  - **1988**: Nigerian Railways declares bankruptcy and stops operations for 6 months.
  - **2002**: By 2002, the Obasanjo administration unveiled a 25-year plan to restructure the moribund Nigerian Railway Corporation (NRC).
  - **2006**: Amalgamation of Lagos and Baro-Kano railways.
  - **2009**: The Federal Govt. of Nigeria Commenced reforms in the railway sector.
  - **2014**: A framework agreement was signed between the Federal Ministry of Transport and CCECC for the Construction of coastal Railway Line connecting ten (10) States.
  - **2014**: On 30 October 2006 President Olusegun Obasanjo signed a contract with China Civil Engineering Construction Corporation to modernize the Lagos to Kano railway line. The 25-year rail development plan then started with the award of the first phase of standard gauge rail line spanning over 1,315 km from Lagos to Kano.
Nigeria’s rail network is severely underdeveloped

<table>
<thead>
<tr>
<th>Country</th>
<th>Total Rail routes (km)</th>
<th>Passengers/km (millions)</th>
<th>Freight ton-km (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>29,817</td>
<td>500</td>
<td>267,700</td>
</tr>
<tr>
<td>USA</td>
<td>228,513</td>
<td>9,518</td>
<td>2,468,738</td>
</tr>
<tr>
<td>Nigeria</td>
<td>3,528</td>
<td>174</td>
<td>77</td>
</tr>
<tr>
<td>Russia</td>
<td>85,292</td>
<td>139,028</td>
<td>2,011,308</td>
</tr>
</tbody>
</table>
Over 50 years of constant decline arising from neglect
Rail and the Petroleum Industry

• It is evident that the oil and rail industries have developed a mutual dependence that is likely to last a while for a number of reasons.

• In Canada and the USA the amount of crude moving by rail has quadrupled since 2012, and is forecast to more than triple between now and 2016.

• The idea of moving crude by rail was born out of frustration and need. In 2006, North Dakota faced a "crude oil transportation crisis." Oil production was rising, but the few pipelines that served the state were full. A good alternative became to move oil products by rail.

• In Nigeria, similarly, Rail to tank farm projects are underway as a result of a dire need to decongest and maintain the highways by taking petroleum tankers off the road.
Linkages of Rail to other ports

- **Abuja**
  - Abuja-Kaduna (187km)

- **Ibadan**
  - Lagos-Ibadan (181km)

- **Minna**
  - Minna-Abuja (145km)

- **Ogun**

- **Osun**

- **Enugu**

- **Warri**

- **Calabar**

- **Port Harcourt**

- **Bonny**

- **Maiduguri**

- **Kano**

- **Gusau**

- **Kaduna**

- **Makurdi**

- **Lagos**

- **Ilorin**

- **Ibadan**

- **Kaduna**

Rehabilitation links to ports (Apapa, Warri, Calabar, Bonny)

[Map showing linkages of rail to other ports]
Linkages of Rail to other ports (2/2)
Rail and the Petroleum Industry

With the possibilities inherent in the ability to move petroleum products by rail there are key considerations that must be considered:

**Key Considerations**

- **Economic**
- **Environmental**
- **Geographical**
- **Infrastructure**

**Impact**

- Typically capital costs are lower with rail as opposed to pipelines but operating costs could be higher. However, in the US rail revenues jumped from $25.8m in 2008 to $2.15bn to 2013.
- With pipelines there are considerations of spills which do not exist with rail, however, there are a few safety considerations with the use of rail.
- Rail increases access to operators tank farms and helps decongest highways.
- The infrastructural requirements for rail transportation will include development of terminals dedicated to petroleum products.
Rail and Petroleum Product Distribution

Commodities like coal and petroleum products are more efficiently transported through train due to the High Load Factor of train.

- One train can move the equivalent of some 280 truck trailers – the equivalent of 1,100 automobiles
- Reduces cost of transportation which is one of the major cost items in product distribution
- Cleaner environment: one-third the pollution from nitrogen oxides and particulates as compared to road transport.
- Reduces accidents and product losses arising from road mishaps and robbery
- If rail links major depots and refineries in Nigeria, it would ensure supply security in an efficient and cost effective manner and would aid to further decongest Nigeria roads
Critical Success Factors

Railway reforms should involve significant change in government policy, investment strategy, or management structure that seeks to improve railway performance. Railways are complex institutions with multiple measures for performance such as costs, transport charges, service levels, and investment needs, among others. Critical success factors will include measures geared towards:

- **Reduction in government expenditures** and liabilities associated with providing railway services.
- **Improvement in railway financial performance** and sustainability.
- **Attraction of private capital** to the rail sector to alleviate government investment requirements.
- **Elimination of transport capacity constraints** to economic growth such as human capital, maintenance culture and technology.
- **Increase in customer responsiveness** and improve services, including through efficiency gains so transport charges can be reduced.
- **Adoption of requirements to increase competition**, provide access to strategic national infrastructure, or introduce new rail transport laws and regulations.
### Changes needed to meet national aspirations for 2043

<table>
<thead>
<tr>
<th>Enabler</th>
<th>Description</th>
<th>Initial hypotheses</th>
</tr>
</thead>
</table>
| **Financing**         | - Development of a targeted financing plan to support required investments  
                        - Estimates ~ **$ 0.9 trillion** is required to meet Nigeria rail infrastructure aspirations by 2043  
                        - Detailed financing plan over the 30 year period is required  
                        - Finances to support this investment will need to come from varied sources  | - Exploit diverse sources of funds even unusual means to support huge investment requirement:  
                                                                                              - Budgetary allocation  
                                                                                              - PPPs and Private sector funding  
                                                                                              - SWF, Pension funds |
| **Manpower & Capability Building** | - Transformative nature of the change required will indicate that there may be a need to rapidly develop:  
                                                                              ✓ Skills to build, maintain and operate infrastructure  
                                                                              ✓ Manpower over the 30 years optimal for operating and building infrastructure  | - Empower existing capability building institutions e.g. ITF  
                                                                                              - Create new manpower development initiatives  
                                                                                              - Import scarce skillset in the short term and facilitate skills transfer |
| **Regulatory reform** | - Current legislation prohibit construction or extension of rail lines without permission of the minister  
                          - Does not provide any permission for private sector.  
                          - Listing of railway transportation in the exclusive list of the constitution discourages sub-national participation  | - Review existing laws and identify areas that can be modified  
                                                                                              - Facilitate passage of new laws that may promote investor friendliness |
| **Governance**        | - Streamlining of processes (budgetary process, legal processes, project selection and feasibility studies) for rail line development  
                        - Nomination and development of bodies responsible for delivery of infrastructure projects  
                        - Proper project monitoring and evaluation (M&E) and impact assessment  | - Enhance all critical processes for infrastructure development  
                                                                                              - Assign responsibility for project success  
                                                                                              - Empower & coordinate M&E teams in various MDAs |
Rail as an Enabler for Economic Growth

Rail transportation has been known to form a critical component of economic development, globally and nationally. Transport availability affects global development patterns and can be a boost to economic growth Nigeria:

• **Geographic Specialisation**: A region will tend to specialise in the production of goods and services for which it has the greatest advantages (or the least disadvantages) compared to other regions as long as appropriate transport is available for trade.

• **Large scale production**: An efficient transport system offering cost, time and reliability advantages enables goods to be transported over longer distances. Thus, the more efficient transportation becomes, the larger the markets that can be serviced and the larger the scale of production. This results in lower unit costs.

• **Increased competition**: When rail transport is efficient, the potential market for a given product (or service) increases, and so does competition.

• **Increased land value**: Land which is adjacent or serviced by good transport services generally has greater value due to the utility it confers to many activities.

• **Employment**: Rail transportation will contribute enormously to economic development through job creation and its derived economic activities.
Conclusion

• Global trends show that economic development has become less dependent on relations with the environment (resources) and more dependent on relations across space.

• Nigeria is currently taking the right steps into reaping the benefits of an efficient rail system but still has a long way to go.

• The primary focus of the Nigerian railway reforms has been to revitalise the moribund railways while reducing the need for the government to provide subsidies to this sector.

• The rail reforms are expected to revitalise important components of the railways, catalyse the take-off of the rail sector, attract private sector investment and therefrom substantially reduce government investment requirements.

• For all the reasons earlier listed in the presentation we hope that these reforms are institutionalised and succeed in bringing back our railways, to better support the governments efforts in other sectors at revitalising the Nigerian economy.