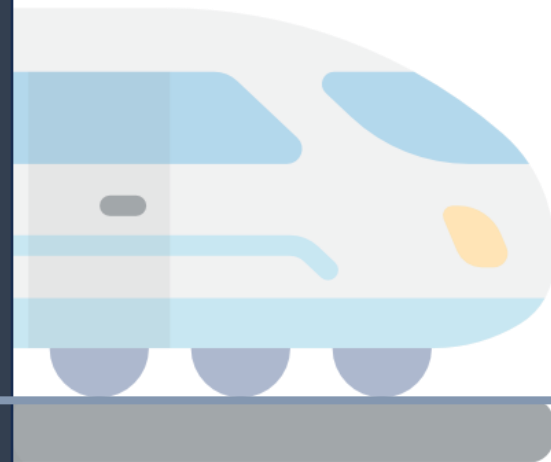


**SUMMARY PROPOSAL FOR DESIGN
AND DEVELOPMENT of RAIL
NETWORK IN THE SOUTH- SOUTH
AND SOUTH - EAST NIGERIA.**



OBJECTIVES

Objectives:

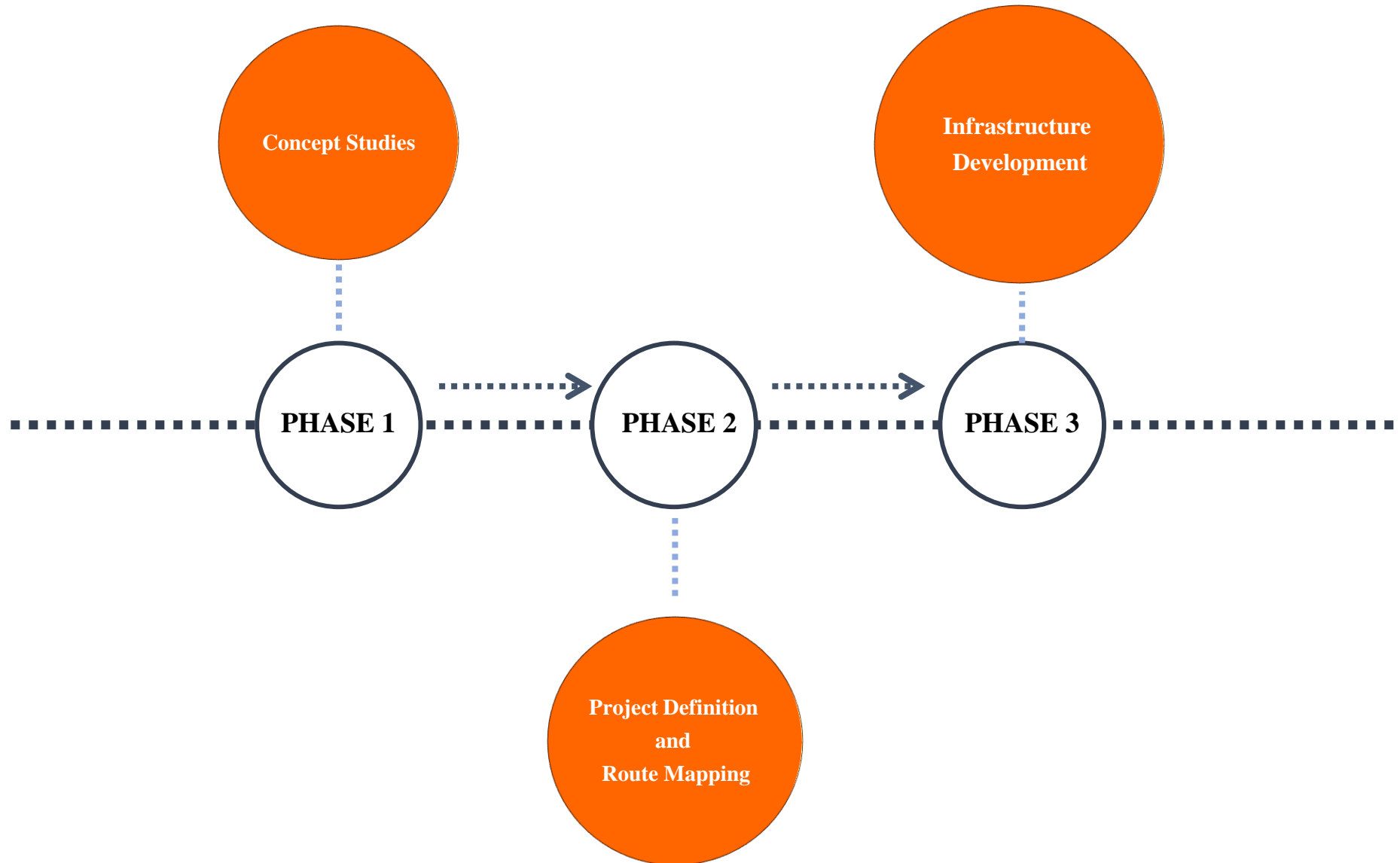
- **Confirm or Identify and analyse alternative** routes for the railway network.
- Assess the **environmental and social impact** of each potential route.
- Evaluate the cost **implications and construction** feasibility of the proposed routes.
- Utilize appropriate mapping technologies for data acquisition and processing.
- Develop a phased approach for project implementation, allowing flexibility for adjustments based on learnings from earlier stages.



PROJECT FACTSHEET

| | |
|---------------------------------|---|
| Project Title | South-East & South-South Rail Network |
| Expected Outcome | Regional Network |
| Project funding requirement | \$15bn |
| Potential Source (s) of Funding | |
| Expected Commencement date | |
| Expected Duration | 18 Months |
| Contact information | Prof Pat Utomi - Dr Chinonye Okwuosa - Prof Jude Nzeako +447565394466 Mr Emmanuel Finddoro Obasi - Dr Donald Duke - email: info@sessrail.com |
| Project Ownership | |

THE PROJECT PHASES



-
- Professor Pat Utomi
 - Dr Okwuosa
 - Mr Emmanuel Finndoro Obasi
 - Prof Jude Nzeako
 - Dr Donald Duke



PROJECT TEAM



PROJECT FUNDING

- Concept Studies = \$10,000
- Project Definition and Route Mapping = \$2.5m
- Project Infrastructure Development and Logistics = \$15bn

BACKGROUND

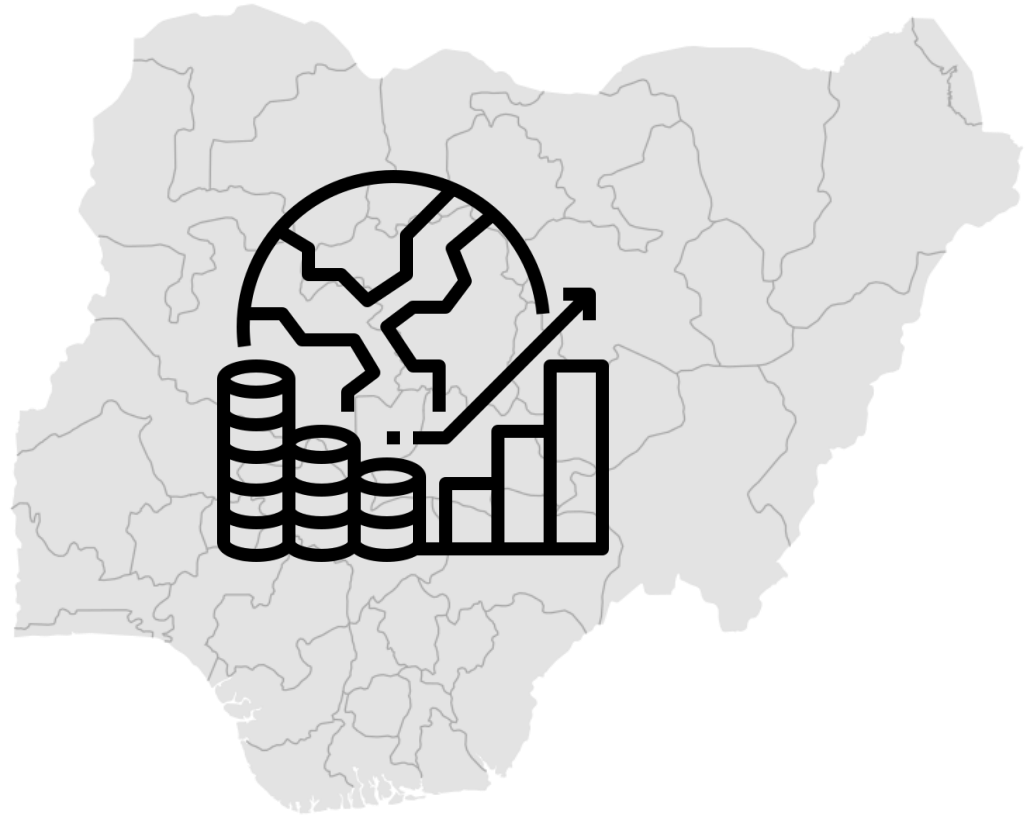


- The South East And South-South Nigeria are in strategic locations in the Country.
- The combined regions population is estimated to be 65M.
- Nigeria imports over 131 million tons of cargo each year .
- It is estimated that the transregional corridor through this rail project has the potential to transport 50 million–100 million tons of cargo each year.

ECONOMIC CORRIDORS

Nigeria has two major local economic corridors:

- The Western Economic Corridor (LAKAJI) and
- the Eastern Economic Corridor (2NEC).
- The LAKAJI corridor runs from Lagos, Kano, and Jibiya in Katsina State.
- The Eastern corridor, goes from Port Harcourt, through Enugu, to Maiduguri, has been abandoned.
- This project will likely reactivate it.



EXISTING CONDITIONS



Key findings:

- Railways in Nigeria consist of a 3,505 km Cape gauge national railway network and 669 km of standard gauge.
- The Cape gauge network is in poor condition due to lack of maintenance.

Nigeria's rail lines are divided into two.

- The Western Line and the Eastern Line.
- The western line connects Lagos on the Bight of Benin to Naguru in the northern state of Yobe, over a distance of 1,126 kilometres,
- The eastern Line connects Port Harcourt in the southeast to Maiduguri in the northeastern state of Borno, near the border with Chad (currently not fully functional)
- There is no active rail corridor in the two S regions.

PROBLEM ANALYSIS



- **Economic Challenges:**

- ✓ High levels of youth and graduate unemployment
- ✓ Poor road and transport infrastructure affecting economic activities

- **Transportation and Agricultural Issues:**

- ✓ Limited access to farms and markets for the movement of farm produce
- ✓ Inefficient transportation network hindering regional growth

RAIL CORRIDORS IN NIGERIA



- **157 km**

Lagos-Ibadan standard gauge rail.

- **186 km**

Abuja-Kaduna standard gauge rail line

- **327 km**

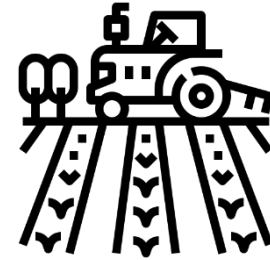
Itakpe-Warri standard gauge rail

- Agbor Railway Village
- Abuja Light Rail project

- **284 km**

Kano-Maradi Standard Gauge Rail

GOALS



- Alleviate unemployment by creating jobs through the construction and operation of the regional rail system.
- Enhance economic activities and trade within and between states in the region
- Improve access to farms, markets, and other essential services.



THE IMPORTANCE OF THE REGIONAL RAIL NETWORK

Regional rail is about more than commuting to and from the city during weekday rush hours. Work, shopping, games, concerts, and other events can all be served by regional rail. These trips can be from suburb to city, suburb to suburb, city to city, or within the city.

- Elevated above regular traffic and aligned to existing roadways for right-of-way.
- Fully **Net-Zero Carbon** Neutral.
- Accommodates **278 passengers** in seated and standing format and 292 in crush-format.
- Designed for short operating headways between stations of approximately **750 meters to 1.5 kilometers** on average.
- Uses only 19 watts of energy per passenger kilometer.
- Maximum operation speed 120 km/hour.
- Zero impact on day-to-day traffic flow in rapidly urbanizing cities.
- Provides high station-to-station speeds and is quick & efficient in respect of point-to-point commuter transit times.



Boost the economy



Improve lives

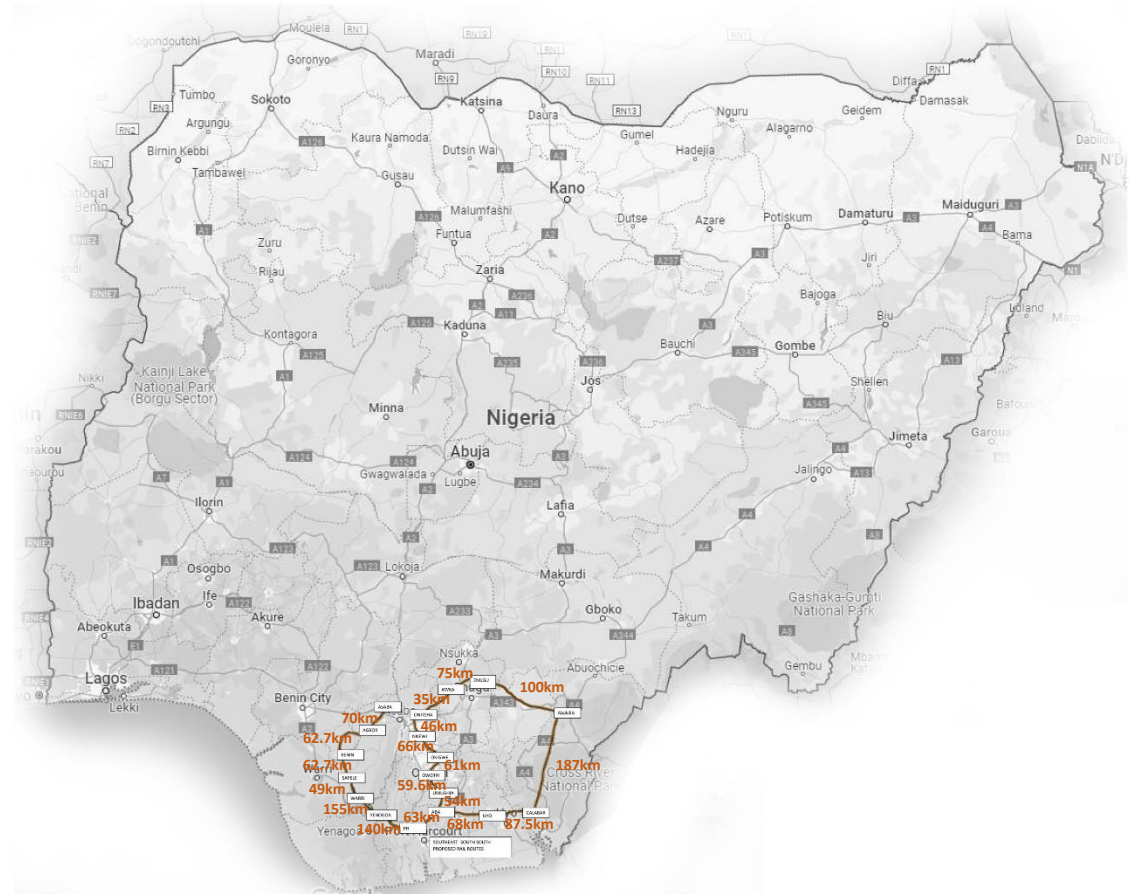


Protect the environment

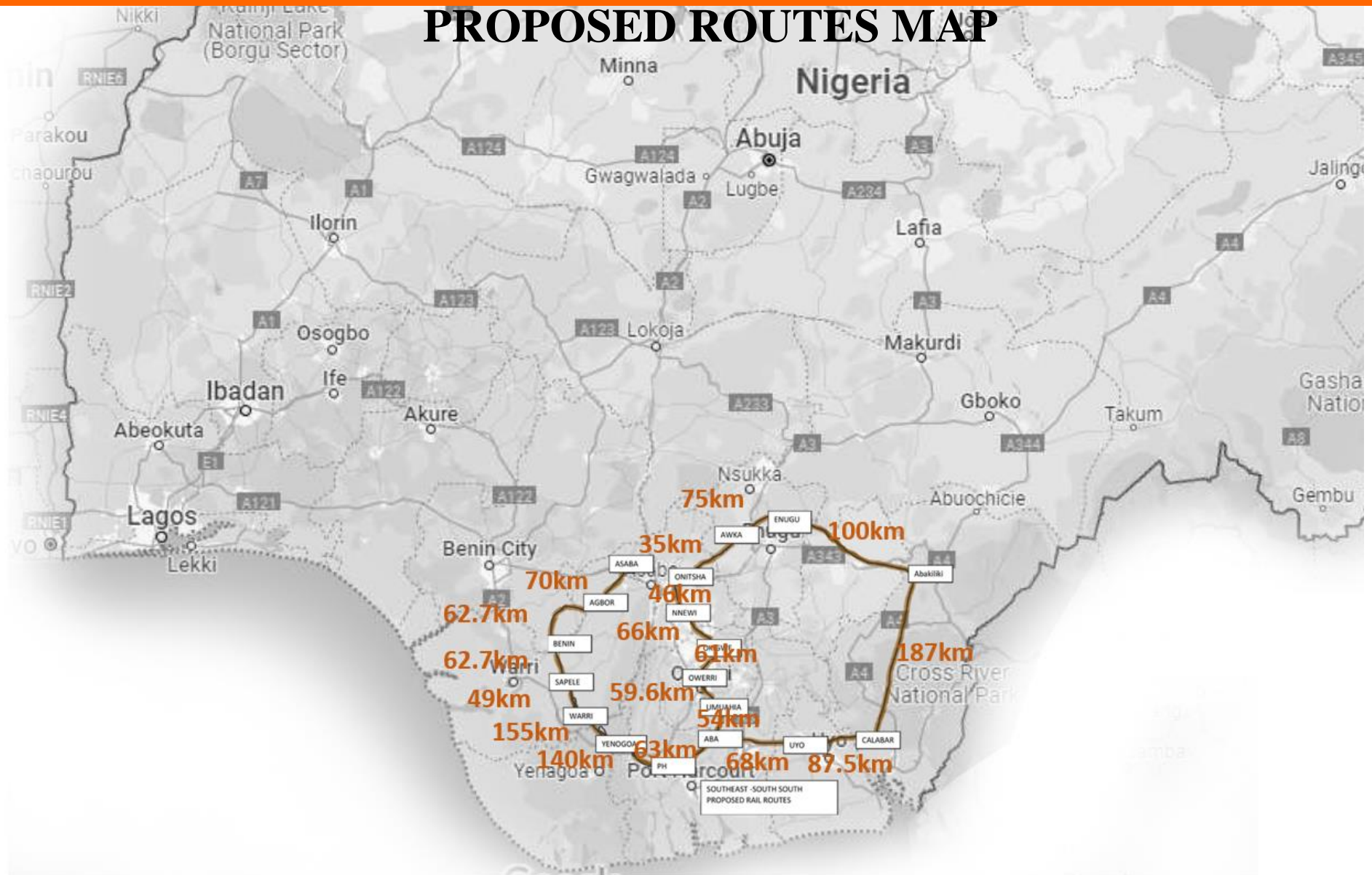
PROJECT OVERVIEW

This project aims to provide detailed geographical and topographical information for the proposed railway lines connecting key cities in the South-South and South-East regions of Nigeria. The survey will map the right-of-way (R-of-W) for each proposed route, including stations, for land acquisition purposes.

| Route No. | Origin City | Destination City | Estimated Distance (km) |
|-----------|---------------|------------------|-------------------------|
| 1 | Abakaliki | Enugu | 100 |
| 2 | Enugu | Awka | 75 |
| 3 | Awka | Onitsha | 35 |
| 4 | Onitsha | Nnewi | 46 |
| 5 | Nnewi | Okigwe | 66 |
| 6 | Okigwe | Owerri | 61 |
| 7 | Owerri | Umuahia | 59.6 |
| 8 | Umuahia | Aba | 54 |
| 9 | Aba | Uyo | 68 |
| 10 | Uyo | Calabar | 94 |
| 11 | Calabar | Abakiliki | 187 |
| 12 | Aba | Port Harcourt | 63 |
| 13 | Port Harcourt | Yenagoa | 140 |
| 14 | Yenagoa | Warri | 155 |
| 15 | Warri | Benin City | 111.7 |
| 16 | Benin City | Asaba | 132.7 |



PROPOSED ROUTES MAP



ECONOMIC BASES AND RESOURCES

Potential Economic Base:

- Transportation and logistics
- Agriculture and manufacturing
- Tourism and leisure
- Low capital costs coupled with low operating costs
- Low ticket pricing

Required Resources:

- Capital
- Land and natural resources
- Labor
- Expertise and technology



RISK AND VULNERABILITY ASSESSMENTS



Environmental

Risks: Erosion, deforestation, habitat disruption, flooding, waste disposal.



Social Risks: Land acquisition conflicts, resettlement challenges, safety concerns, cultural impact.



Economic Risks: Project cost overruns, funding delays, market changes, competition from other transport modes.



Security

Risks: Vandalism, theft, accidents, terrorist attacks.



Mitigation

Strategies: Environmental studies, stakeholder engagement, land acquisition plans, safety measures, security protocols, insurance coverage.

PROJECT COMPONENTS AND FINANCING

Data acquisition:

- Satellite imagery, ground truthing, drone surveys, RTK data capture.

Data processing:

- Analysis, coordinate conversion, drafting, cross-section and profile generation.

Deliverables:

- Satellite imagery maps, coordinates list, topographical maps, cross-sections, profiles, report.

Financing:

- Client-funded contract, potential for public-private partnerships or grants.

ECONOMIC, SOCIAL AND ENVIRONMENT BENEFITS

- **Economic:**

- Relative to other mass transport modalities.
- Offers **low capital costs** coupled with low operating costs, which translates into low ticket pricing.
- Ideal for **poorer communities**, who need quality, low-cost, reliable public transport.

- **Social:**

- Improved access to **education, healthcare, and markets, poverty reduction, enhanced quality of life.**
- High-speed inter-city freight & passenger systems.

- **Environmental:**

- **Zero impact on the environment – no noise, no pollution and no congestion** and is thus an excellent metropolitan citizen and neighbor, especially in congested urban settings.
- The very compact installation footprint minimizes the need for land expropriation / compensation as rights-of-way are typically owned / controlled by the contracting governmental authority.



ENVIRONMENTAL AND SOCIAL IMPACT

The proposed railway lines in South-South/South-East Nigeria have the potential to be a transformative force for regional development. However, it's crucial to consider the potential environmental and social impacts of such a project to ensure its sustainability and positive impact on local communities.

Environmental Impacts:

- Habitat loss and fragmentation
- Deforestation and soil erosion
- Water pollution
- Air pollution
- Noise pollution



Social Impacts:

- Land acquisition and resettlement
- Cultural impacts
- Safety concerns
- Economic benefits and livelihood opportunities



What Next: PROJECT DEFINITION AND ALTERNATIVE

ROUTE MAPPING

Scope:

The project aims to conduct a comprehensive mapping and analysis for the proposed railway network across the southeast and southern regions of Nigeria.

The mapping project will provide valuable insights into the identified potential routes, considering factors such as

- **environmental impact,**
- **social impact, cost, and**
- **construction feasibility.**

PHASE II: ROUTE MAPPING



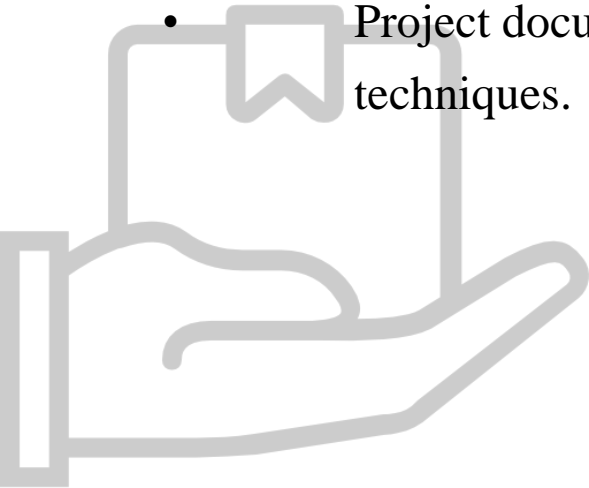
Objectives

- Identify and analyse alternative routes for the railway network.
- Assess the environmental and social impact of each potential route.
- Evaluate the cost implications and construction feasibility of the proposed routes.
- Utilize appropriate mapping technologies for data acquisition and processing.
- Develop a phased approach for project implementation, allowing flexibility for adjustments based on learnings from earlier stages.

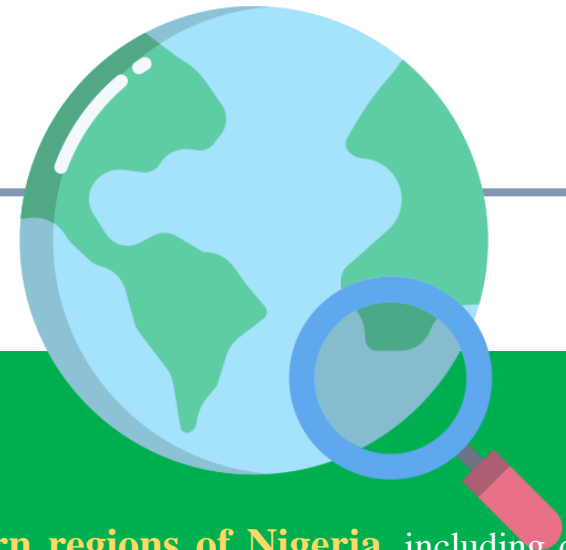
DELIVERABLES

Deliverables:

- Detailed maps highlighting alternative railway routes.
- Environmental and social impact assessments for each route.
- Cost analysis and feasibility reports for the proposed routes.
- Recommendations for the optimal railway network based on the analysis.
- Project documentation, including methodology, data sources, and analysis techniques.



GEOGRAPHY



- Geographic Extent:
- The mapping project will cover the entire **southeast and southern regions of Nigeria**, including detailed assessments of potential railway routes and their impact on the surrounding areas.
- Technology and Methods:
- Utilize advanced mapping technologies such as **LiDAR**, satellite imagery, and aerial photography for data acquisition. **Geographic Information System (GIS)** software will be employed for data analysis and mapping. Social and environmental impact assessments will be conducted using a combination of **field surveys** and community consultations.
- Format of Final Deliverables:
- The final deliverables will include **comprehensive reports** in both digital and printed formats. Maps, charts, and visual representations will be included to enhance understanding. All documentation will be made available in a user-friendly format for easy reference and dissemination.

ROUTE MAPPING TIMELINE

Timeline:

The project will be conducted over a 6-month period, broken down as follows:

- Month 1: Planning and Stakeholder Engagement
- Month 2-3: Data Acquisition and Analysis
- Month 3-4: Impact Assessment and Feasibility Studies
- Month 4-5: Recommendations and Reporting
- Month 5-6: Final Review and Presentation
- Budget:
 - The estimated budget for the entire route mapping project is \$2.5 million, covering expenses related to data acquisition, technology use, manpower, and documentation.



PHASE III: INFRASTRUCTURE

Objective

The primary objective of constructing a rail line infrastructure linking the South East and South-South States of Nigeria is to:

- Enhance regional connectivity,
- Foster economic development,
- Promote social integration.

This ambitious project aims to address various challenges and capitalize on opportunities, with the overarching goal of contributing to the sustainable growth of the regions involved

INFRASTRUCTURE CONT'D

Specific Objectives

Improved Transportation Efficiency: Develop a **modern and efficient** rail network to facilitate the seamless movement of goods and passengers between **the South East and South-South States**. This will alleviate congestion on existing road networks, **reduce transportation costs**, and enhance overall logistical efficiency.

Economic Development: Foster economic growth by creating new opportunities for **trade, commerce, and investment**. The rail infrastructure will provide **a reliable and cost-effective** means of **transporting goods, stimulating business activities, and attracting both local and foreign investments to the regions**.



INFRASTRUCTURE CONT'D

Specific Objectives

Job Creation: Generate **employment opportunities** through the various stages of the rail line's **construction, maintenance, and operation**. Additionally, the improved connectivity is expected to spur economic activities, leading to the creation of jobs in industries related **to transportation, trade, and services**.

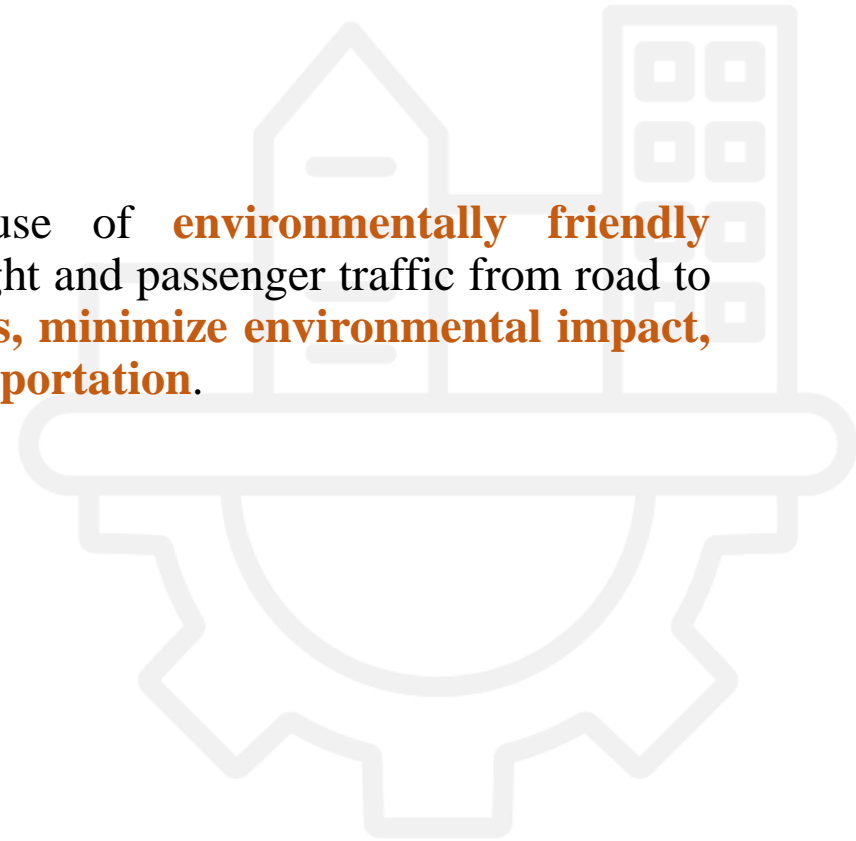
Enhanced Regional Integration: Strengthen **social ties and cultural exchange** between **the South East and South-South States**, promoting a sense of **unity and collaboration**. The rail line will serve as a catalyst for **regional integration, fostering mutual understanding and encouraging** shared development goals.



INFRASTRUCTURE CONT'D

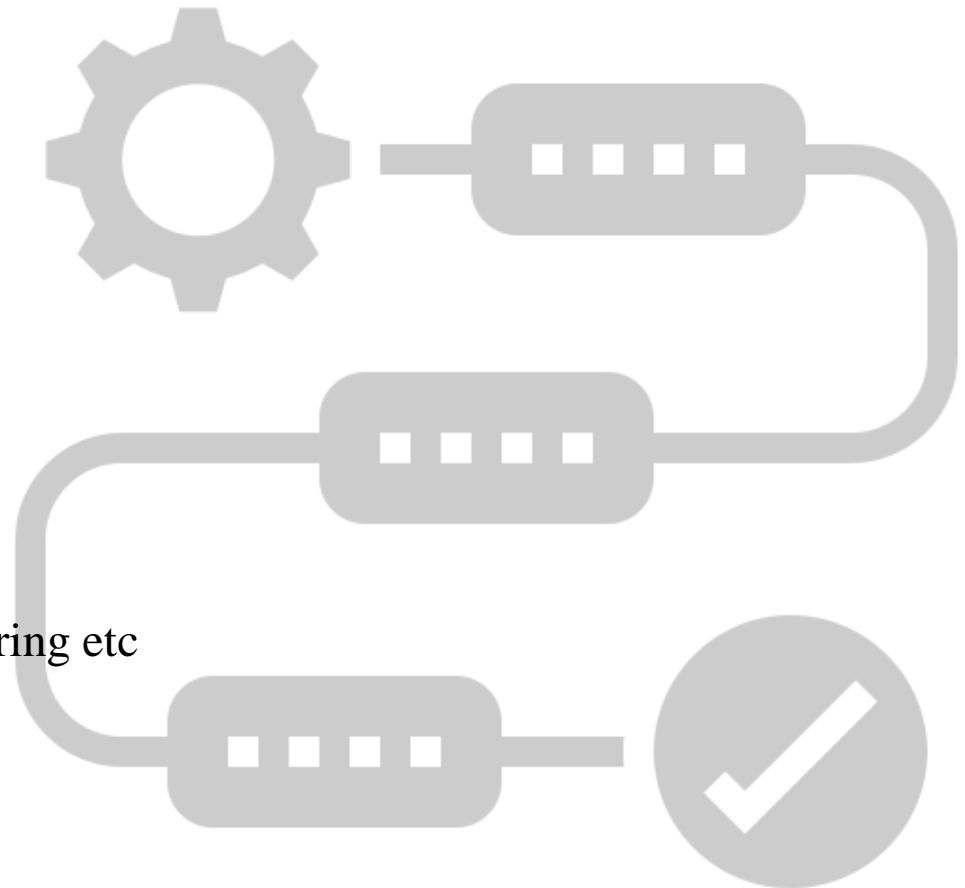
Specific Objective

Environmental Sustainability: Encourage the use of **environmentally friendly** transportation by shifting a significant portion of freight and passenger traffic from road to rail. This transition aims to **reduce carbon emissions, minimize environmental impact, and contribute to a more sustainable mode of transportation.**



METHODOLOGY

- Phase I - Establishment of Rail Authority
- Phase II -Rail Infrastructure Development
- Phase III -Build and Manage Rail Operations
- Phase IV -Launch Rail Services
- Phase V -Rail Relationship Management
- Phase VI -Capacity Building, Knowledge sharing etc



JUSTIFICATION FOR PROJECT

- The proposed railway network holds significant potential for socio-economic development in South-South/South-East Nigeria.
- Sustainable development possible because of fully net zero carbon neutral and no fossil fuels used.
- Zero impact on day-to-day traffic flow in rapidly urbanizing cities.
- More passenger can use it for their daily transportation.
- More time efficient.



- **Alternative Routes:** Explore and analyse different potential routes, considering environmental impact, social impact, cost, and construction feasibility.
- **Mapping Technologies:** Investigate the use of alternative mapping technologies such as LiDAR or aerial photography based on project requirements and budget constraints.
- **Phased Approach:** Consider implementing the project in phases, allowing for adjustments based on learnings from earlier stages, ensuring flexibility in decision-making.
- By incorporating these alternatives, the project aims to provide a well-informed and flexible approach to the development of the railway network, taking into account various factors and potential challenges.

ALTERNATIVES

THANK YOU