## Research Aim
To develop a planning and policy framework of independent mobility that fits to child-friendly military barracks in Nigeria.

## Research Methodology

<table>
<thead>
<tr>
<th>RO</th>
<th>Indicators or variable</th>
<th>Data Required</th>
<th>Sources of Information</th>
<th>Tools</th>
<th>Data Processing and Analysis</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RO1</strong></td>
<td>To identify indicators of children's independent mobility in the military barracks of Nigeria</td>
<td>Destinations (Road connectivity and population density), Home Range, Av. Travel Time, Land Diversities (Land cover and Land use changes), Parental License</td>
<td>Landsat Imagery, GPS Coordinates, GIS Spatial Data, Independent mobility indicators obtained from previous studies</td>
<td>Primary Sources (Field Survey, interview of children on their experiences in living, learning, and playing environs), Secondary Source (Publications, Government department, articles, books, and longitudinal data)</td>
<td>ERDA ArcGIS SPSS</td>
<td>Goe-referencing, Digitisation, Buffering techniques, Destination and route preference mapping, Distances and Calculation of Av. Travel Time as well as Factor analysis</td>
</tr>
<tr>
<td><strong>RO2</strong></td>
<td>To investigate the features of built environment and residential amenities that supports or hinder children independent mobility in the military barracks of Nigeria</td>
<td>Basic Services, Environmental Quality, Safety &amp; Security, Distance, Land use mix</td>
<td>Survey Questionnaire</td>
<td>Primary Sources (RQ &amp; RH) Secondary Sources</td>
<td>SEM and NVIVO</td>
<td>Descriptive Statistics, Factor Analysis, Confirmatory Analysis, and ANOVA</td>
</tr>
<tr>
<td><strong>RO3</strong></td>
<td>To examine travel mode choice behavior of that influence independent mobility in the residential environment of the military barracks community of Nigeria.</td>
<td>Age/Gender, Parental Fear, Distance, Stranger's Fear, Traffic Volume, Car Ownership</td>
<td>Survey Questionnaire, Focus Group, and Photographs</td>
<td>Primary Sources (RQ &amp; RH, Semi-Structured Interview) Secondary Sources</td>
<td>SEM and NVIVO</td>
<td>Descriptive Statistics, Factor Analysis, Confirmatory Analysis, ANOVA, and Content analysis</td>
</tr>
<tr>
<td><strong>RO4</strong></td>
<td>To Evaluate Association between the built environment and travel mode choice behavior that influences independent mobility of children in military barracks</td>
<td>Summary of variables RO2 +RO3=RO4</td>
<td>Survey Questionnaire, Focus Group, and Photographs</td>
<td>Primary Sources (RQ &amp; RH, Semi-Structured Interview) Secondary Sources</td>
<td>SEM and NVIVO</td>
<td>Descriptive Statistics, Factor Analysis, Confirmatory Analysis, ANOVA, and Content analysis</td>
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## Research Objectives

1. **RO1**: To identify indicators of children's independent mobility in the military barracks of Nigeria.
   - Destinations (Road connectivity and population density), Home Range, Av. Travel Time, Land Diversities (Land cover and Land use changes), Parental License
   - Landsat Imagery, GPS Coordinates, GIS Spatial Data, Independent mobility indicators obtained from previous studies
   - Primary Sources (Field Survey, interview of children on their experiences in living, learning, and playing environs), Secondary Source (Publications, Government department, articles, books, and longitudinal data)
   - ERDA ArcGIS SPSS
   - Goe-referencing, Digitisation, Buffering techniques, Destination and route preference mapping, Distances and Calculation of Av. Travel Time as well as Factor analysis
   - Barracks Spatial Maps, Children’s route map, Objective Measurement of Independent, Mobility indicators, Parent and Children’s negotiated freedom of movement in the barracks

2. **RO2**: To investigate the features of built environment and residential amenities that support or hinder children independent mobility in the military barracks of Nigeria.
   - Basic Services, Environmental Quality, Safety & Security, Distance, Land use mix
   - Survey Questionnaire
   - Primary Sources (RQ & RH)
   - Secondary Sources
   - SEM and NVIVO
   - Descriptive Statistics, Factor Analysis, Confirmatory Analysis, and ANOVA
   - Planning Framework

3. **RO3**: To examine travel mode choice behavior of that influence independent mobility in the residential environment of the military barracks community of Nigeria.
   - Age/Gender, Parental Fear, Distance, Stranger’s Fear, Traffic Volume, Car Ownership
   - Survey Questionnaire, Focus Group, and Photographs
   - Primary Sources (RQ & RH, Semi-Structured Interview)
   - Secondary Sources
   - SEM and NVIVO
   - Descriptive Statistics, Factor Analysis, Confirmatory Analysis, ANOVA, and Content analysis
   - Travel Policy Framework

4. **RO4**: To Evaluate Association between the built environment and travel mode choice behavior that influences independent mobility of children in military barracks.
   - Summary of variables RO2 +RO3=RO4
   - Survey Questionnaire, Focus Group, and Photographs
   - Primary Sources (RQ & RH, Semi-Structured Interview)
   - Secondary Sources
   - SEM and NVIVO
   - Descriptive Statistics, Factor Analysis, Confirmatory Analysis, ANOVA, and Content analysis
   - Planning and policy Framework of Independent Mobility that fits to military barracks and improve children’s well-being and quality of life
**INDEPENDENT MOBILITY OF CHILDREN IN MILITARY BARRACKS URBAN MILIEU OF NIGERIA**

**DATA COLLECTION TIMELINE**

**STUDY AREA**
1. Sam Ethnan AIIR Force Barracks (A)
2. Nigeria Air Force Barracks Kaduna (B)

**Stage 1 (RO1)**
June 1 – 20
- Landsat imagery
- GPS coordinate
- ArcGIS Mapping

Field Survey, Semi-Structured Interview, and Survey Questionnaire (Quantitative)

**Stage 2 (RO 2 and RO3)**
June 1 – 5
June 6 – 20 August
- Survey Questionnaire
- Photographs image

Survey Questionnaire

**Stage 3 (RO2 + RO3 = RO4)**
August 20 – 28
- Survey Questionnaire (Parent) (RO2+RO3) = RO4
- Semi structure interview (Children)
- Focus group interview
- video (Parent and Children)
- Photograph images

Survey Questionnaire, Interviews, and Photographs (Mixed Mode Method)

**Stage 4 (all RO)**
August 29 – 29 Sept.
- Cleaning of data and coding of data collected in excel

**DATA PROCESSING & ANALYSIS**

**SATellite Image of A and B**

**Digitized Map of A and B**

**Road Network Connectivity of A and B**
## Preliminary Analysis/Findings of Independent Mobility Of Children’s Indicators (RO1)

<table>
<thead>
<tr>
<th>S/N</th>
<th>Indicators</th>
<th>SEAB</th>
<th>NAF Barrack Kaduna</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Children's Accessibility</td>
<td>All destinations &amp; building features digitised with focus on destinations where children relate</td>
<td>Children in the barracks have environmental knowledge &amp; marked destinations on the map provided.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The children's playground was abandoned which shifted their attention to football field and home yard.</td>
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</tr>
<tr>
<td>2</td>
<td>Road Connectivity</td>
<td>Road Network well connected</td>
<td>Road Network well connected</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Children marked shorter routes as their preference road to school but little confusion on play areas due to non-functionality of structured playground and open spaces in SEAB.</td>
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<tr>
<td></td>
<td></td>
<td>No attractive features on routes to school</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>The streetscape is bereaved of attractive features, good walkways, traffic control facilities, parks, and bicycle lanes</td>
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</tr>
<tr>
<td>3</td>
<td>Population Density</td>
<td>Densely populated and smaller land area</td>
<td>Sparsely populated and larger land area</td>
</tr>
<tr>
<td>4</td>
<td>Home Range</td>
<td>Closer children destinations, shorter distances, and route to destinations</td>
<td>Farther destinations, longer distances, and route to destinations</td>
</tr>
<tr>
<td>5</td>
<td>Av. Travel Time</td>
<td>Shorter distances with less time to walk, cycle, and drive to destination encourages children’s walking to school and play areas</td>
<td>Longer distances with more time for walking, cycling, and driving to destinations discovered</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Driving speed in barracks is 30km/hour. The entrance and exit gates to barracks are closed at 12 midnight and opened 6am daily to ensure security.</td>
<td>Willingness of children to walk to far school and play areas not encouraged</td>
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<td>6</td>
<td>Land Use</td>
<td>Land use mix, children are restricted to the barracks as they live, attend school, go for play and for activities with a variety of attractions.</td>
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