Rural Access Index

Definition

‘The proportion of the rural population living within two kilometres of an all-season road’.

All-season = “a road that is motorable all year round by the prevailing means of rural transport (often a pick-up or a truck which does not have four-wheel-drive), with some predictable interruptions of short duration during inclement weather (e.g., heavy rainfall) allowed.”
Rural Access Index / SDG 9.1.1

It is the only SDG indicator for rural transport

Reached Tier II status in January 2019
The Rural Access Index (RAI) was developed by the World Bank in 2006, and is one of the most important global development indicators in the transport sector. The RAI is defined as the proportion of the rural population who live within 2 km of an all-season road.

This map, developed in partnership with ReCAP (managed by Cardno), TRI, and Azavea is a proof of concept tool that displays an estimate RAI for all countries based three open datasets (OpenStreetMap, WorldPop, GRUMP).

For three trial countries in the ReCAP 2019 project (Nepal, Malawi, and Myanmar), country-specific datasets have been used that are regarded as more accurate than the current open datasets. These country-specific datasets have been used to generate scores that better reflect the RAI for those countries.
RAI “Proof of Concept” Tool

Encourages NSOs to upload their own data to be used instead of the “default”

Could be done at sub-national level too
Can also be calculated at project level in order to identify the actual populations that would be impacted by addition or upgrading of an existing road.

**Malawi**

The following statistics were generated using two approaches: 1. with open datasets — OpenStreetMap, WorldPop (2019), GRUMP; and 2. with data provided by the country using the RAI methodology developed by World Bank and Supplemental Guidelines developed by TRL. Both approaches are described in further detail that can be found in the about section.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Approach 1: Open Data</th>
<th>Approach 2: In-country Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent served (RAI)</td>
<td>64%</td>
<td>63%</td>
</tr>
<tr>
<td>Total population</td>
<td>17,908,438</td>
<td>17,908,438</td>
</tr>
<tr>
<td>Rural pop.</td>
<td>14,572,403</td>
<td>15,031,498</td>
</tr>
<tr>
<td>Rural pop. served</td>
<td>9,431,741</td>
<td>9,480,698</td>
</tr>
<tr>
<td>Road length</td>
<td>15.816</td>
<td>13.575</td>
</tr>
</tbody>
</table>

[Download global RAI data]
### Rural Access Index (RAI)

<table>
<thead>
<tr>
<th>Region</th>
<th>Total</th>
<th>Rural</th>
<th>Living &gt;2 km away from an all-season road</th>
<th>RAI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>1,317.7</td>
<td>908.4</td>
<td>421.1</td>
<td>53.6</td>
</tr>
<tr>
<td>Americas</td>
<td>1,057.3</td>
<td>222.7</td>
<td>71.0</td>
<td>68.1</td>
</tr>
<tr>
<td>Asia</td>
<td>4,632.8</td>
<td>2,590.6</td>
<td>658.9</td>
<td>74.6</td>
</tr>
<tr>
<td>Europe</td>
<td>757.1</td>
<td>190.6</td>
<td>19.8</td>
<td>89.6</td>
</tr>
<tr>
<td>Oceania</td>
<td>37.4</td>
<td>12.8</td>
<td>7.4</td>
<td>42.2</td>
</tr>
<tr>
<td>World</td>
<td>7,802.3</td>
<td>3,925.0</td>
<td>1,178.2</td>
<td>70.0</td>
</tr>
</tbody>
</table>

Because it works at all levels, it can be used to roll up to the global level. These are latest world estimates from the tool.
Upgrading the Base Data in OSM

Roads Datasets

• Malawi Roads Authority. Roads Data Management (RDM)
• Department of Surveys. Roads, tracks, paths, etc.
• Open Street Map (OSM). Roads and attributes available
Mapping roads through deep learning and weakly supervised training

July 23, 2019  Written by  Saikat Basu, Derrick Bonafilia, James Gill, Danil Kirsanov, David Yang

Creating accurate maps today is a painstaking, time-consuming manual process, even with access to satellite imagery and mapping software. Many regions — particularly in the developing world — remain largely unmapped. To help close this gap, Facebook AI researchers and engineers have developed a new method that uses deep learning and weakly supervised training to predict road networks from commercially available high-resolution satellite imagery. The resulting model sets a new bar for the state of the art for accuracy, and because it is able to accommodate regional differences in road networks, it can effectively predict roads around the globe.

Related posts
Mapping the world to help aid workers, with weakly, semi-supervised learning
April 09, 2019
Potential for use of Mobile Phone Network Data

• Increasingly being used for transport surveys, and to monitor traffic in real time
• Potential for mobile data to indicate whether a road is being used, and how fast the people using the road are travelling, average speeds etc.
• Cell to cell:
Collaboratives

Trusted Data Collaboratives working with the Global Platform to produce new trusted methods, learnings and statistics

Items 1-10 of 185

Collaborative

"Now-casting" Food Prices in Indonesia Using Social Media Signals

"Now-casting" Food Prices in Indonesia Using Social Media Signals
→
HD Imagery in UK

Some companies in UK have created on-line cloud of geo-referenced High Definition Imagery

Been doing this annually for 10 years, on spec
HD Imagery in UK

Machine Learning Applications:
- Asset Management
- Change Detection
- Road Deterioration
- Others*
So it’s possible to take the imagery and do a Road Safety Rating using Machine Learning tool, without having to conduct a new survey.

Can also go back and do it historically if you wish.

Many countries are building Star Ratings into their national indicators and their safety policies.
You don’t always need machine learning to tell you what the safety issues are.