



المركز الاتحادي
للتنافسية والإحصاء
FEDERAL COMPETITIVENESS
AND STATISTICS CENTRE



UNCEBD Mobilizing Big Data & Data Science for the SDG's

Rural Access Index (RAI) UAE Practice

KNOWLEDGE
FOR PROSPERITY

وزارة شؤون مجلس الوزراء | Ministry of Cabinet Affairs

Rural Access Index (RAI) Calculation

UAE Practice

UAE Federal Competitiveness and Statistics Centre (FCSC)

Big Data for the SDGs session

The implementation of the SDGs are a cross sector collaboration, which includes the public and private sectors, civil society, and international organizations



International partnerships to accelerate SDG implementation

National Committee on SDGs – 16 Federal Government Entities

Private Sector Advisory Council on SDGs – 14 Private Sector entities

Youth Advisory Council on SDGs – 12 youth members

Outreach and engagements with Academia

Whole-of-society engagements projects to ensure inclusivity



The Story Behind the UAE SDG Logo

UAE's National Committee on SDGs has created a bespoke logo to represent the approach the country is taking to implement the SDGs. Inspired by the colors of the 17 SDGs, each color in the logo represents a goal and the blending of colors is intended to convey the complexity, indivisibility and crosscutting nature of the SDGs. The map of the UAE at the center of the ring of colors illustrates the fact that sustainable development is very much a way of life for the country. Furthermore, the logo for each SDG places UAE's map in the middle and gives prominence to the official color of that goal.



SDG Goal 9 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all

- Indicator 9.1.1: Proportion of the rural population who live within 2 km of an all-season road

Components :

- Population dataset
- Built-up area dataset
- Urban Rural areas dataset
- Roads Dataset

Datasets required

Population

- UAE 2019 population estimate per sub district

Built-up area

- European Commission GHS built up epoc 2015 – 250 meters resolution
- European Commission GHS built up sentinel 2016 - 30m resolution- method of 2019
- FCSA Built-up areas extracted from Landsat imagery
- Residential areas from ministry of energy and infrastructure

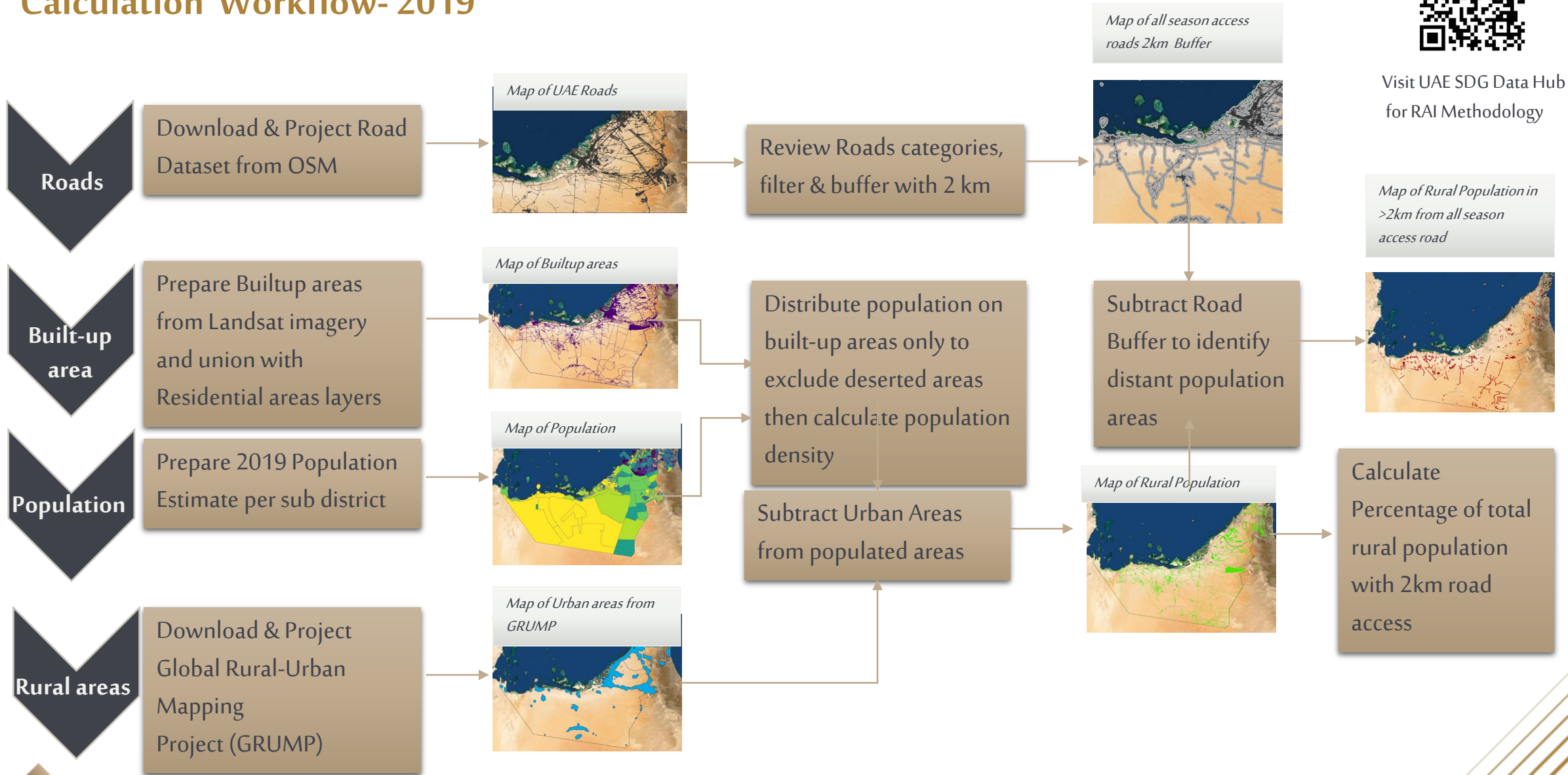
Urban Rural areas

- Global Rural-Urban Mapping Project (GRUMP), v1 The data set consists of polygons representing urban extents with population figures for 1990, 1995, and 2000.

Roads

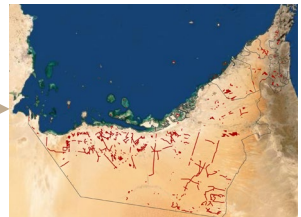
- Open street map 2020 - Planet OSM data

Calculation Workflow- 2019



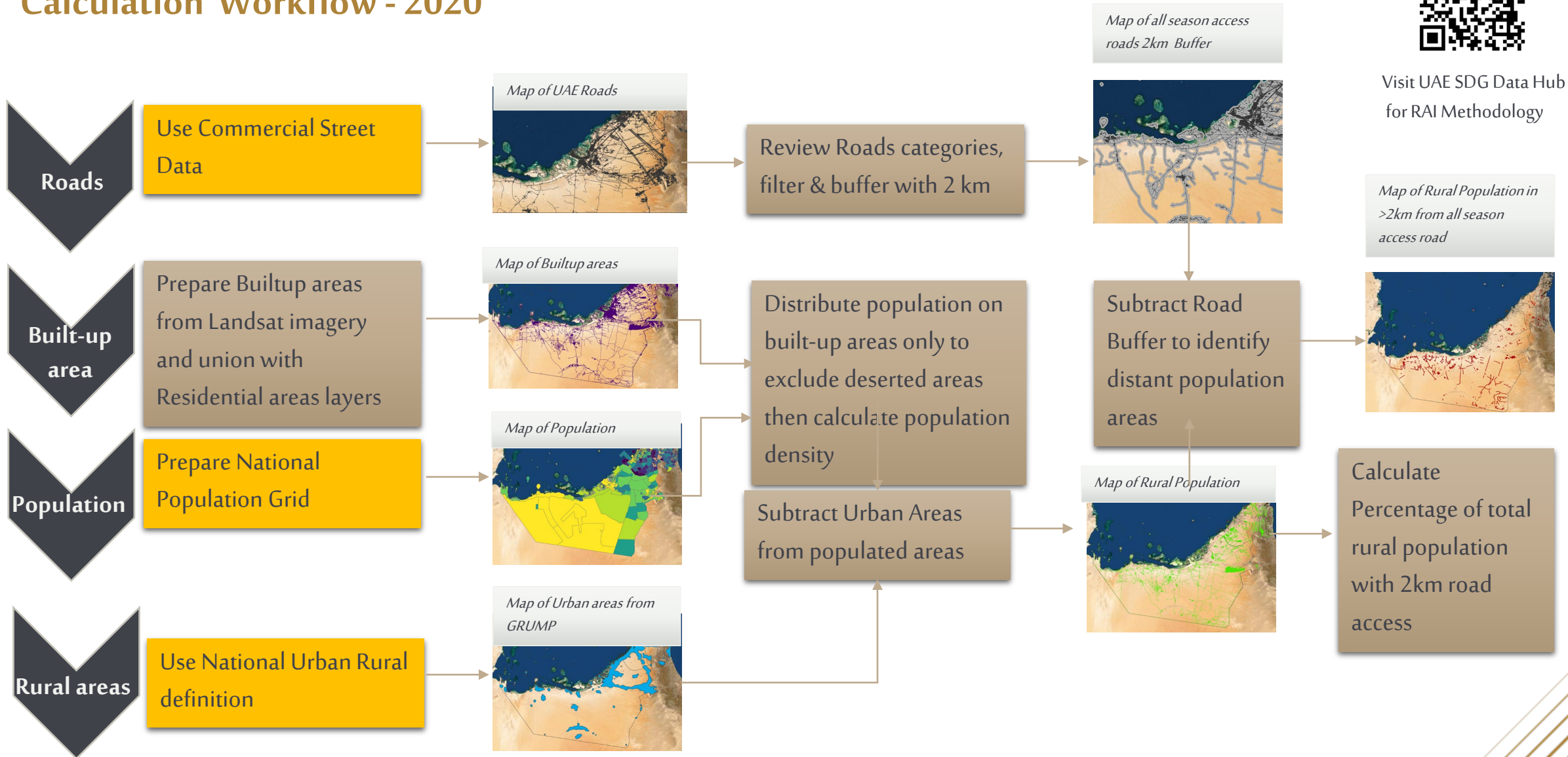
Visit UAE SDG Data Hub for RAI Methodology

Map of Rural Population in >2km from all season access road



Calculate Percentage of total rural population with 2km road access

Calculation Workflow - 2020

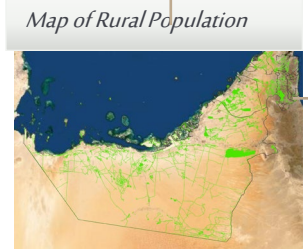


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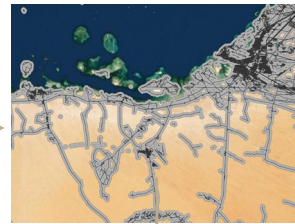
Map of Rural Population in >2km from all season access road



Calculate Percentage of total rural population with 2km road access



Map of all season access roads 2km Buffer



Review Roads categories, filter & buffer with 2 km

Distribute population on built-up areas only to exclude deserted areas then calculate population density

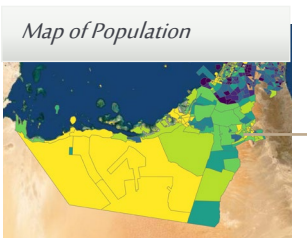
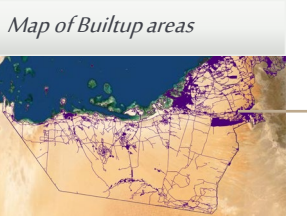
Subtract Urban Areas from populated areas

Use Commercial Street Data

Prepare Builtup areas from Landsat imagery and union with Residential areas layers

Prepare National Population Grid

Use National Urban Rural definition



The UAE has addressed multiple SDG indicators, through Earth Observations

Workflow of built-up area extraction

Prepare imagery (stacking & mosaicking)



Apply unsupervised classification



Aggregate polygons at the same area



Conduct Visual check



Verify results with Global Human Settlement Layer (GHSL)



Repeat workflow for different years from 1972 till 2020



Indicator 9.1.1: Proportion of the rural population who live within 2 km of an all-season road

Data Inputs:

- Population dataset/grid
- Built-up area dataset
- Urban Rural areas dataset



Indicator 11.3.1: Ratio of land consumption rate to population growth rate

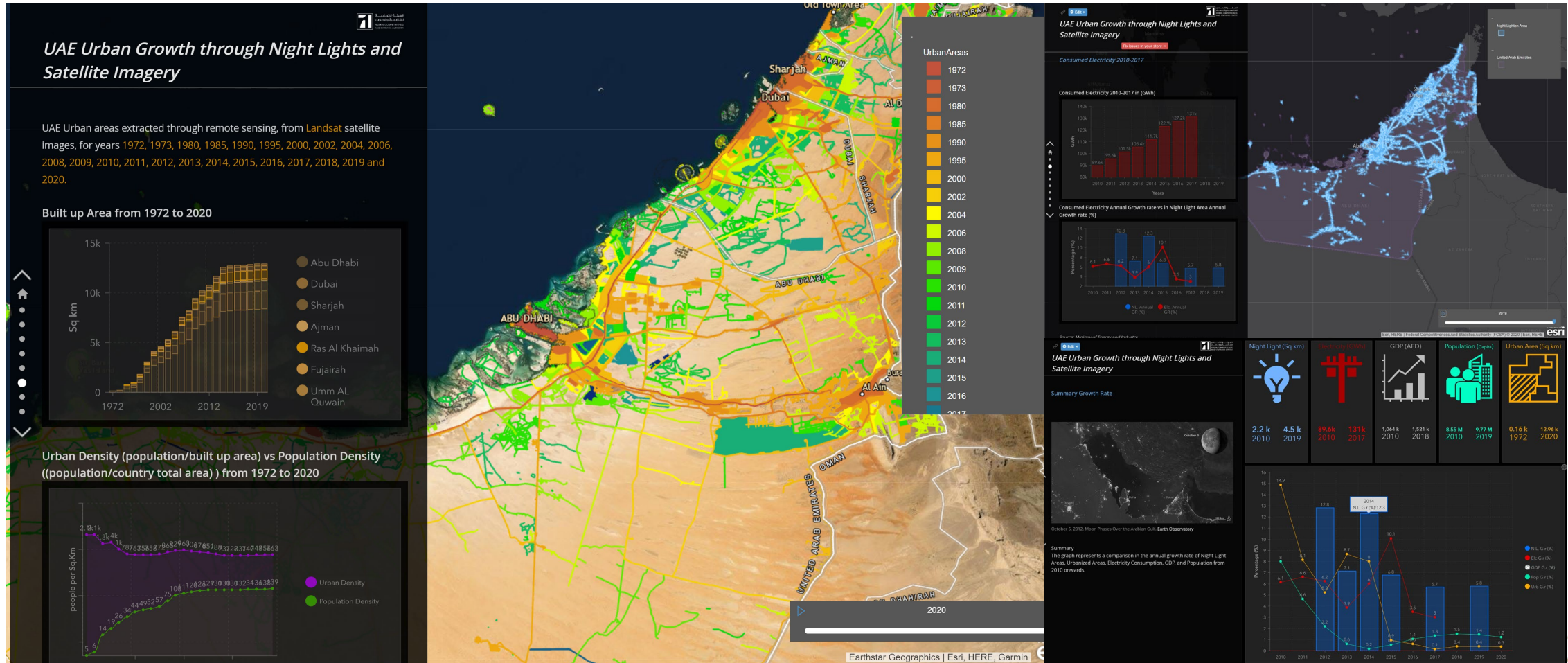
Data Inputs:

- 1- Population Growth Rate
- 2- Land Consumption Rate from Landsat, Sentinel & EPOC imagery

Mapping built-up areas from 1972-2020 and night lights from 2010-2020

Comparing growth rate of night light areas, built-up areas, electricity consumption, GDP, and population.

Using extracted built-up areas in population grid production.





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