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GLOBAL URBANIZATION PATTERNS FROM JRC'S ATLAS OF THE HUMAN PLANET

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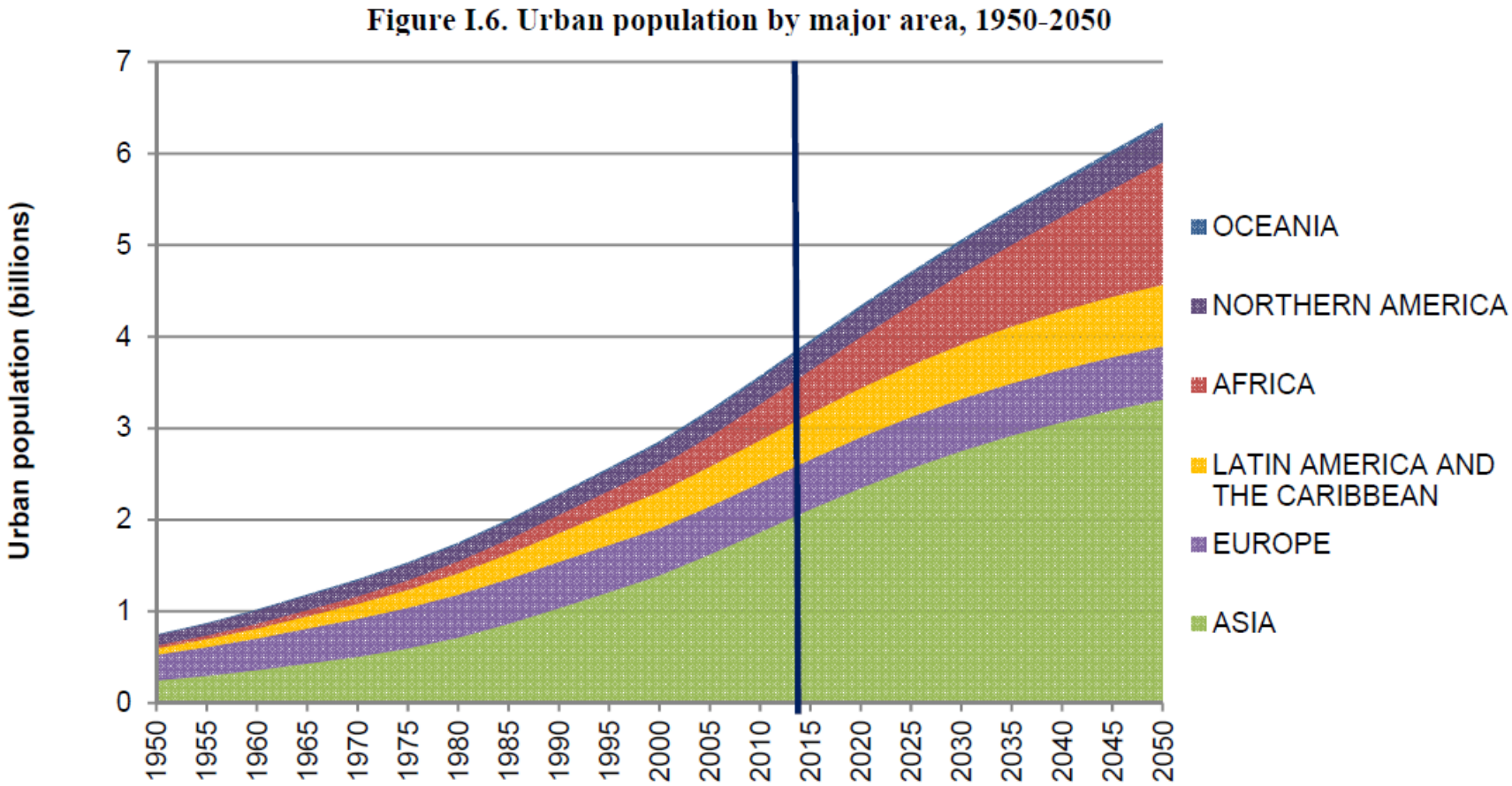
European Commission

CONTENTS

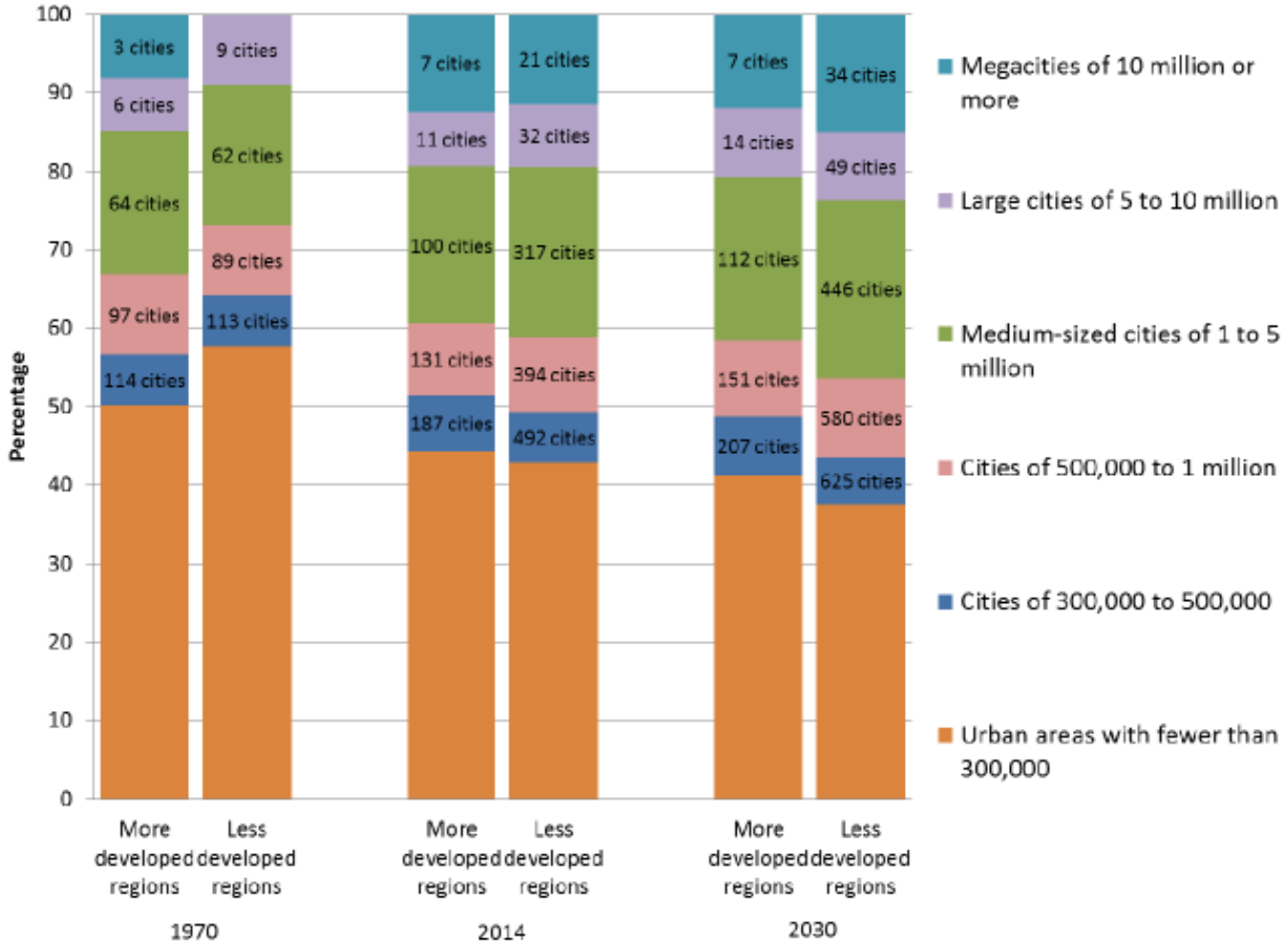
- Global urbanization
- JRC's Global Human Settlement Layer (GHSL)
- What does it tell us about global urbanization patterns?
- Future perspectives – GEO Human Planet Forum 13-15 September 2017

GLOBAL URBANIZATION TREND



UN, World Urbanization Prospects, 2014)

DISTRIBUTION OF URBAN POPULATION BY CITY SIZE 1970, 2014, 2030



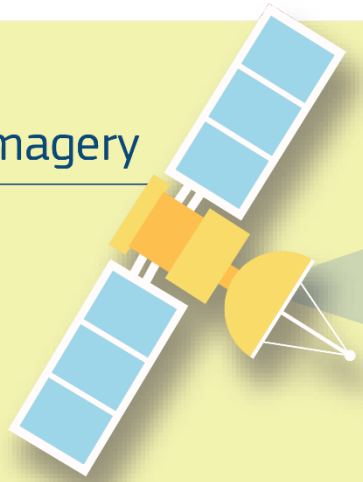
UN, World Urbanization Prospects, 2014)

the Global Human Settlement Layer

the most **complete**, consistent, **global**, **free** and **open** dataset
on human settlements – from the village to the megacity

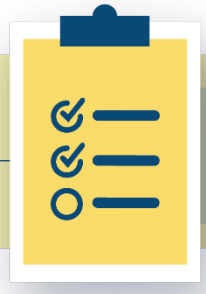
Spatial info

Satellite imagery



- Built-up areas
- Green areas
- Night lights

Census data



- Population

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MAIN STEPS TO CREATE THE GHSL PRODUCTS

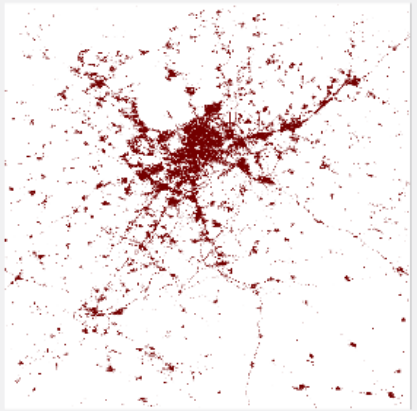
1

Satellite imagery

2015
2000
1990
1975

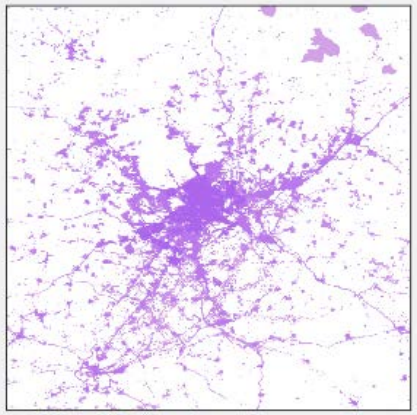
2

GHS
BUILT-UP



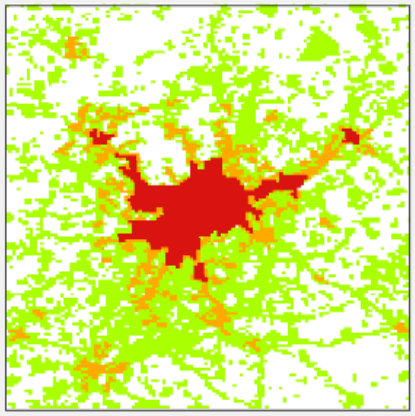
3

GHS
POP



4

GHS
S-MOD



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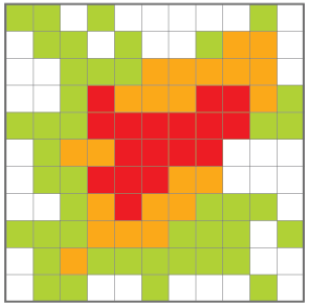
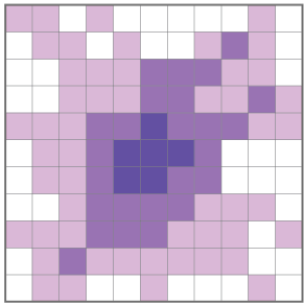
S-MOD
calculated at 1Km



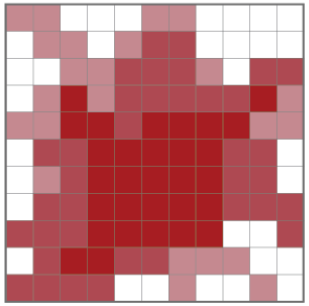
=

POPULATION GRID
aggregated from 250m

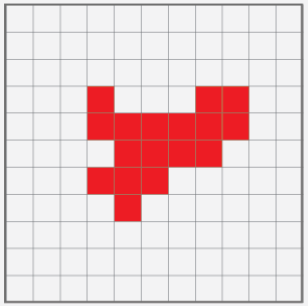


+

BUILT-UP
aggregated from 38m



Urban Centre



Required conditions

EACH GRID CELL

minimum of 1.500 inhabitants

OR

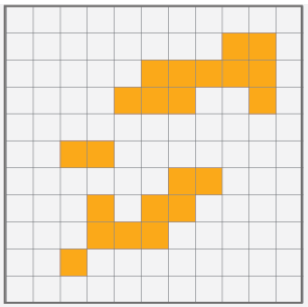
density of built-up greater than 50%

AND

TOTAL POPULATION
≥ 50.000
INHABITANTS

contiguous grid cells
(4-connectivity, gap filling) with
minimum population of 50.000
inhabitants

Urban Cluster



Required conditions

EACH GRID CELL

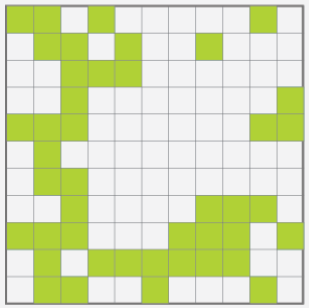
minimum of 300 inhabitants

AND

TOTAL POPULATION
≥ 5.000
INHABITANTS

contiguous grid cells
(8-connectivity)
with minimum population of 5.000
inhabitants

Rural



Required conditions

EACH GRID CELL

cell with inhabitants

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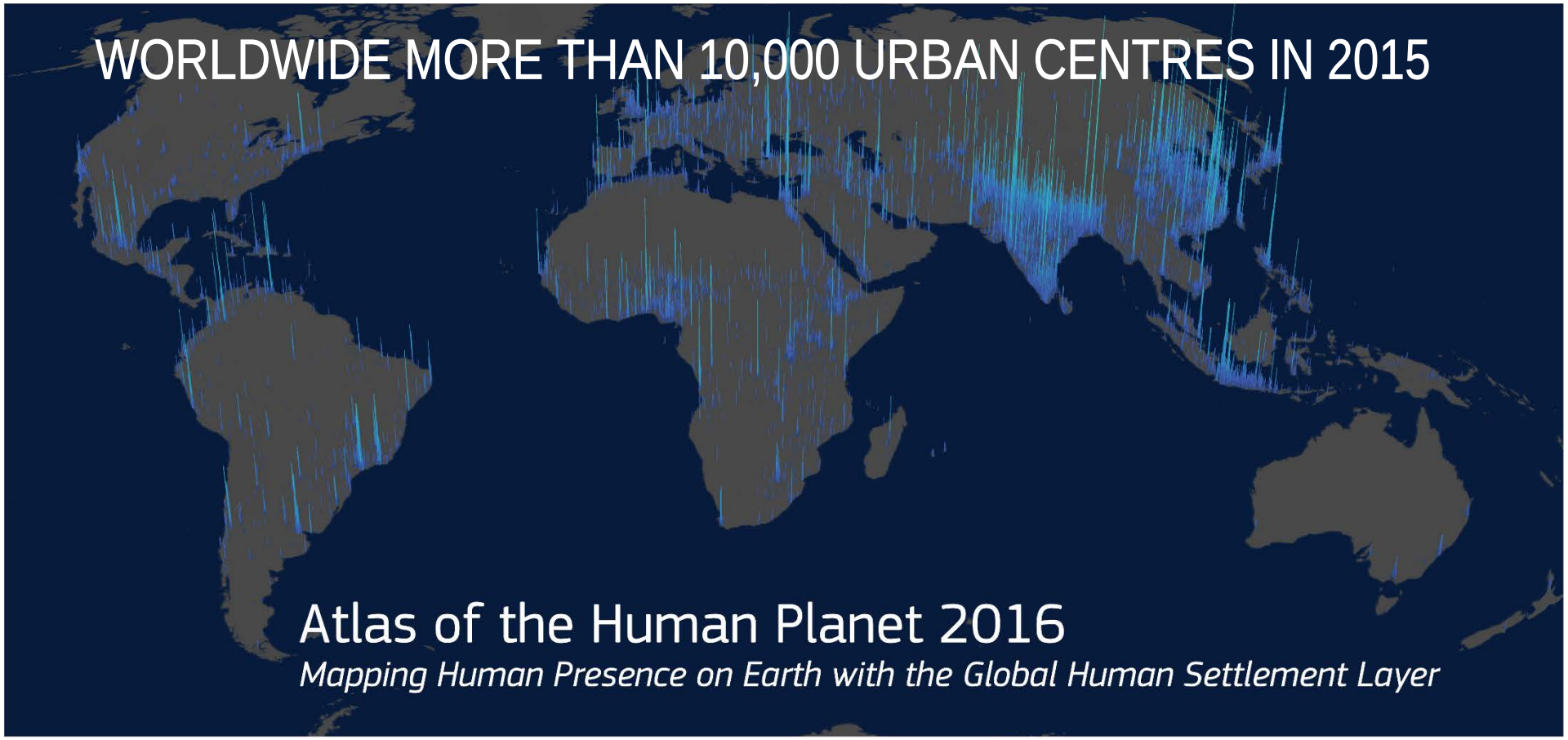
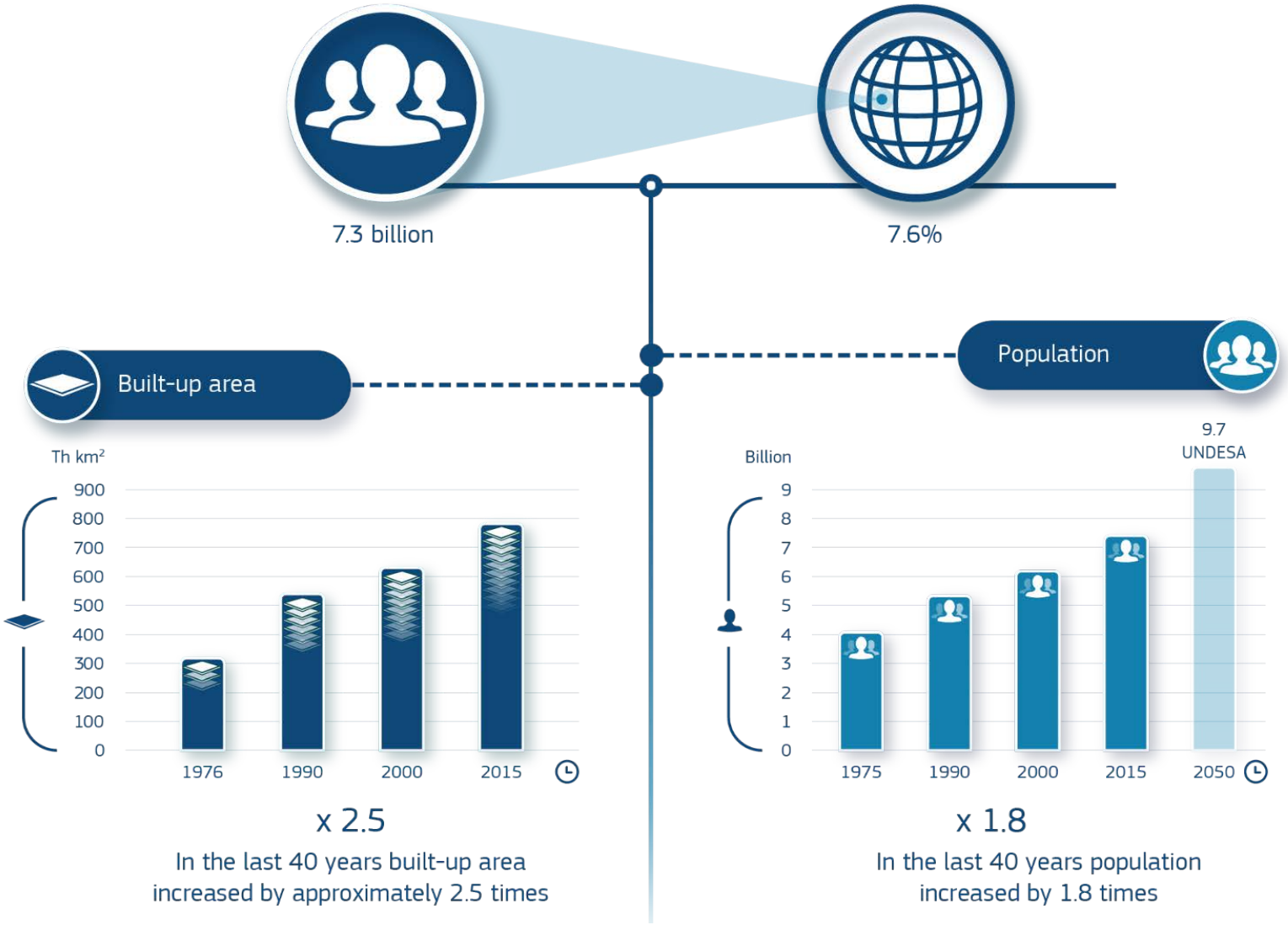
WORLDWIDE MORE THAN 10,000 URBAN CENTRES IN 2015



Some of the key findings

7.3 BILLION PEOPLE LIVE AND WORK ON 7.6% OF GLOBAL LAND



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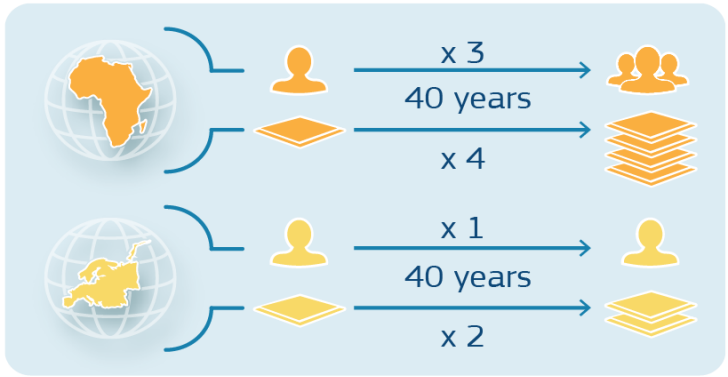
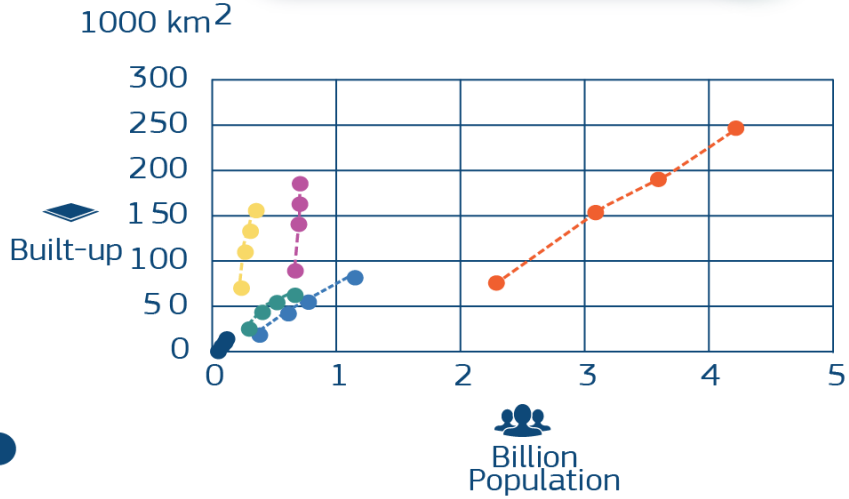
STRONG REGIONAL DIFFERENTIATION OF GROWTH

The dynamic of population and built-up increase have very strong regional differences



Asia is by far the most populated continent and has since the year 2000 also the biggest amount of built-up areas

Growth of population and built-up



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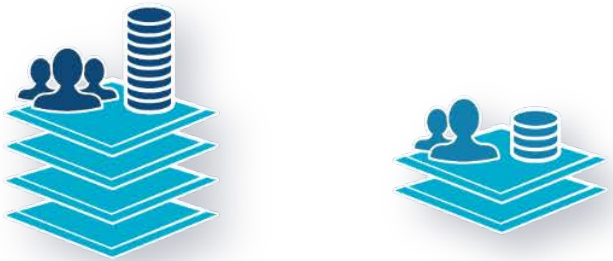
Great inequalities between rich and poor in built-up space per capita



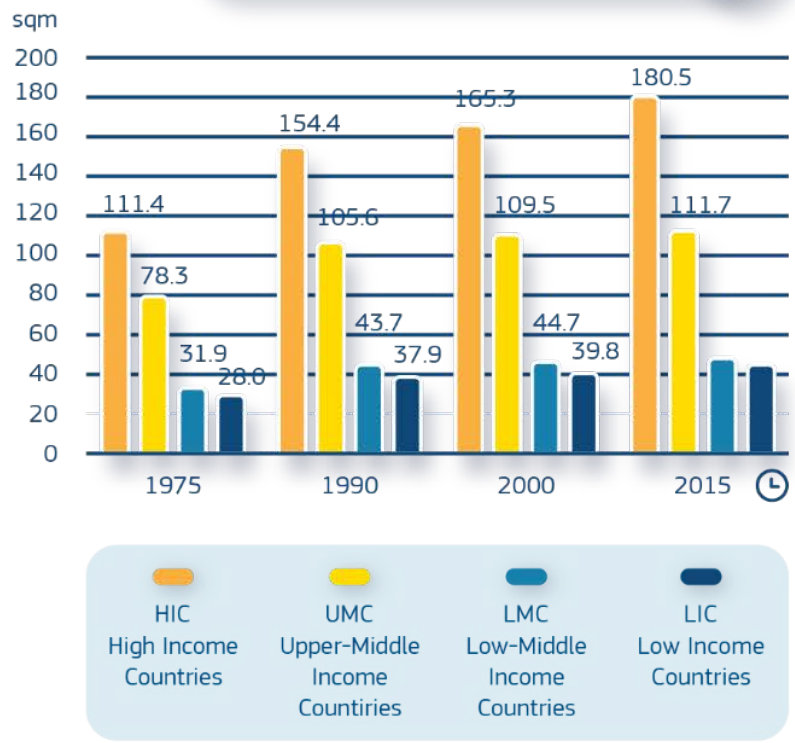
The High Income Countries (HIC) have increased the available built-up area per capita.
The built-up area per capita in Low-Middle Income Countries (LMC) and Low Income Countries (LIC) is only less than one quarter of that of HIC

180,5 HIC

43,7 LIC

Square metres per inhabitant

Built-up area per capita in different income groups



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32 URBAN CENTRES WITH >10 MILLION INHABITANTS IN 2015

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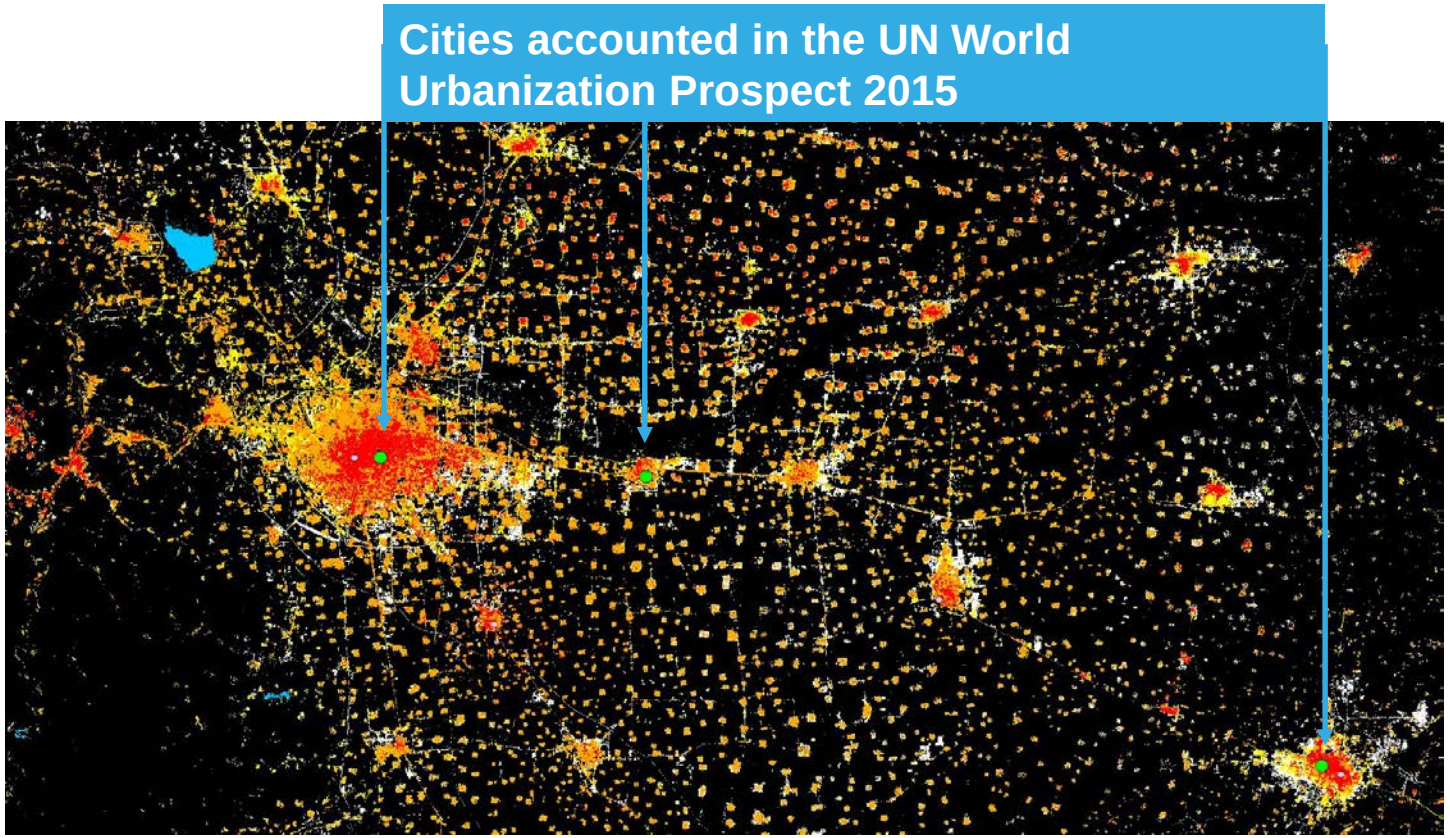
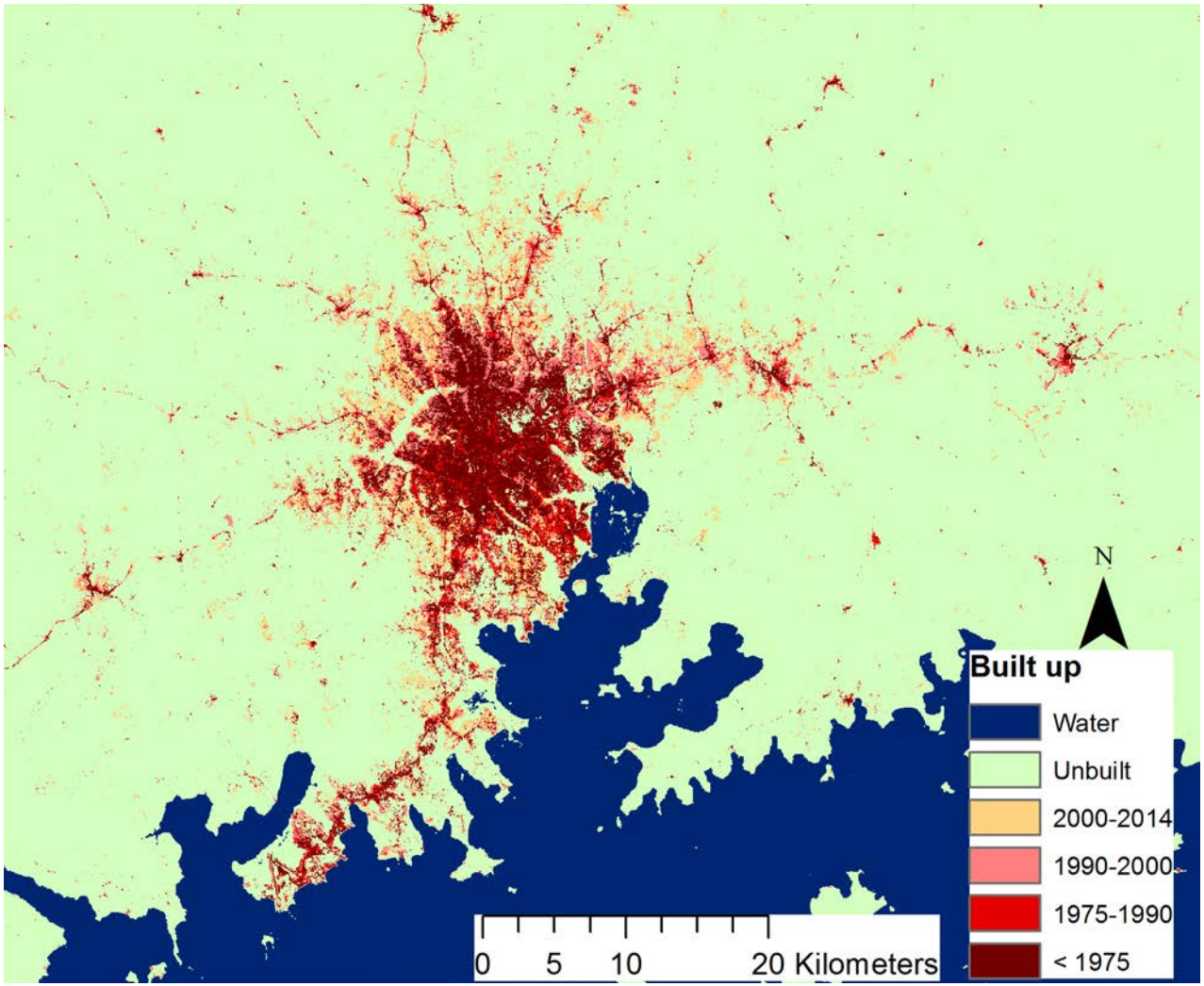
JRC GHSL REVEALING NEW ELEMENTS IN THE GLOBAL UNIVERSE OF CITIES

(EXAMPLE BEIJING, CHINA)

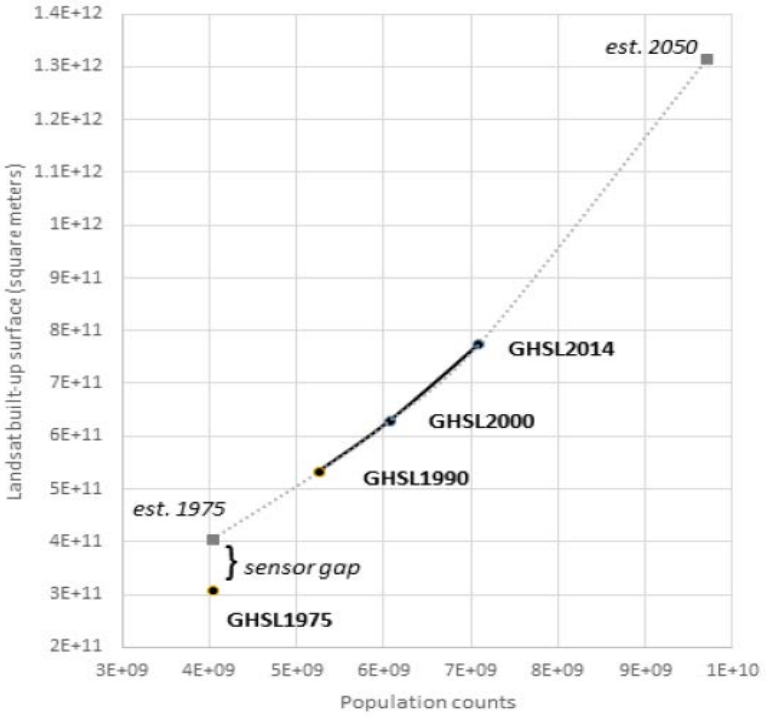


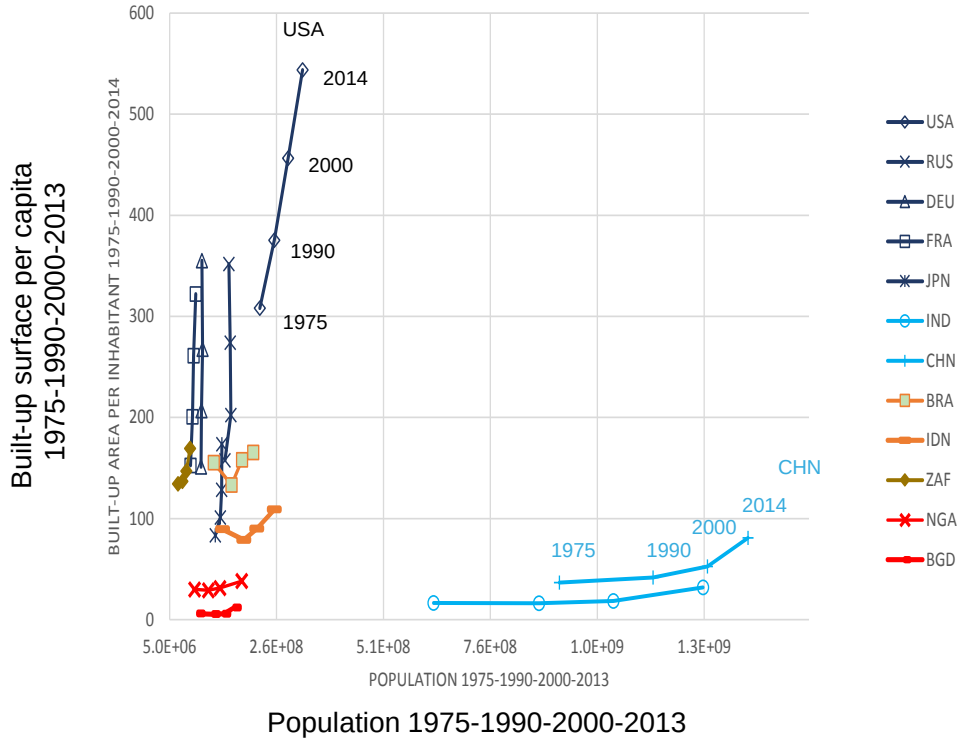
URBAN EXPANSION KAMPALA 1975-2014

POP. GREATER KAMPALA FROM 3.5 MILL. TO EST. 8-10 MILL. BY 2040



JRC GHSL PRODUCING GLOBAL COMPARABLE FIGURES





Population 1975-1990-2000-2013

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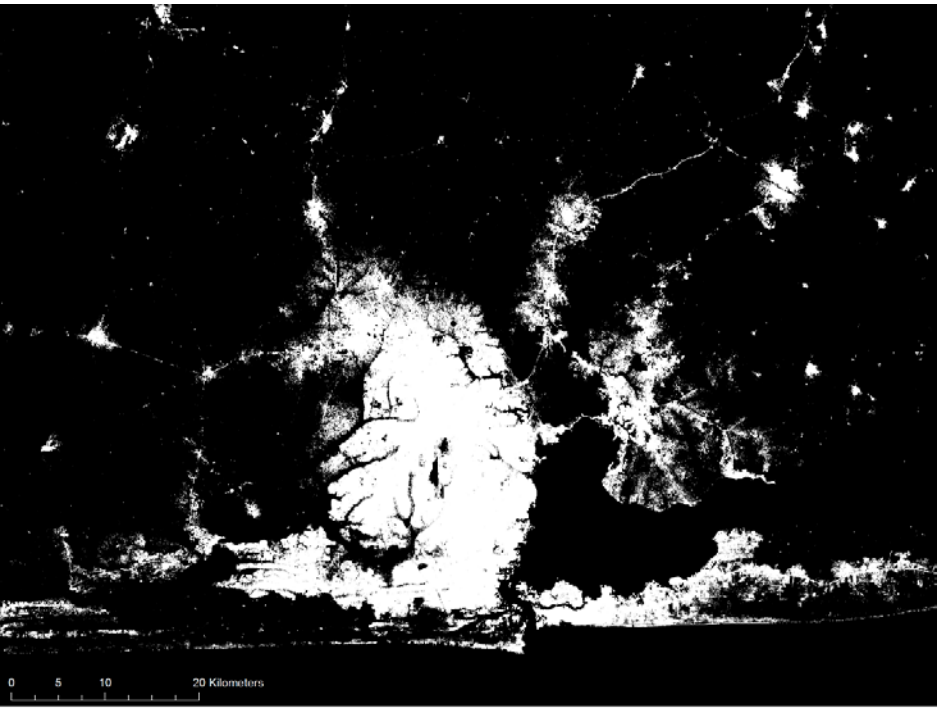
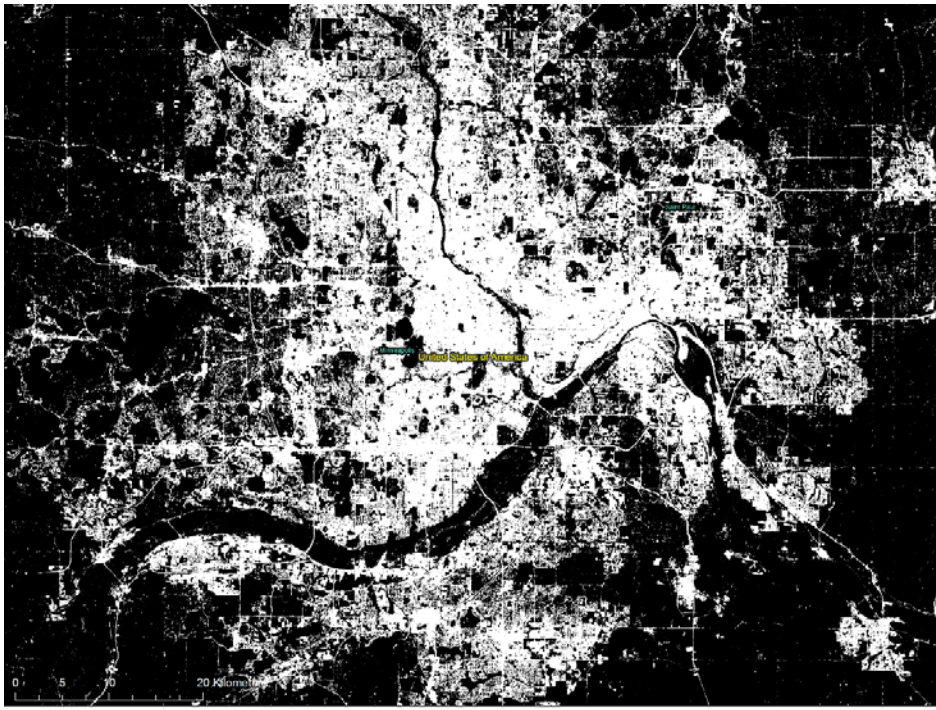
GHSL ENABLING OBJECTIVE CITY-LEVEL COMPARISON (CONSTANT SCALE)

Lagos, Nigeria, 2015
~5 millions inhabitants
Built-up areas, Landsat 30m-res sensor



Minneapolis, US, 2015
~0.5 millions inhabitants
Built-up areas, Landsat 30m-res sensor



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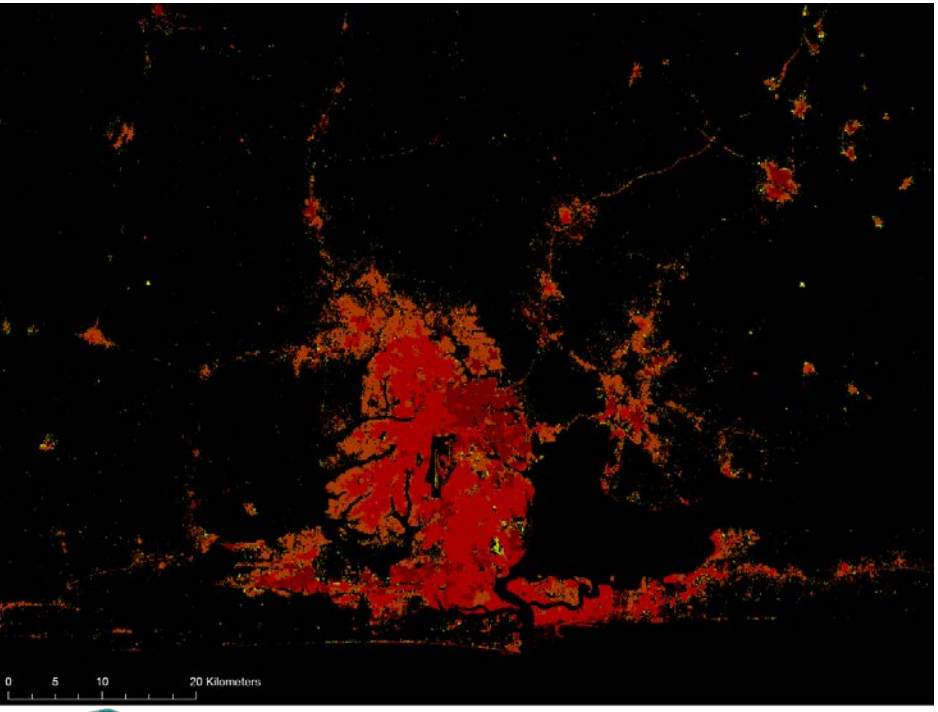
GHSL ENABLING OBJECTIVE CITY-LEVEL COMPARISON (CONSTANT SCALE)

Lagos, Nigeria, 2015

~5 millions inhabitants

Vegetation component in built-up areas, Landsat 30m-res sensor



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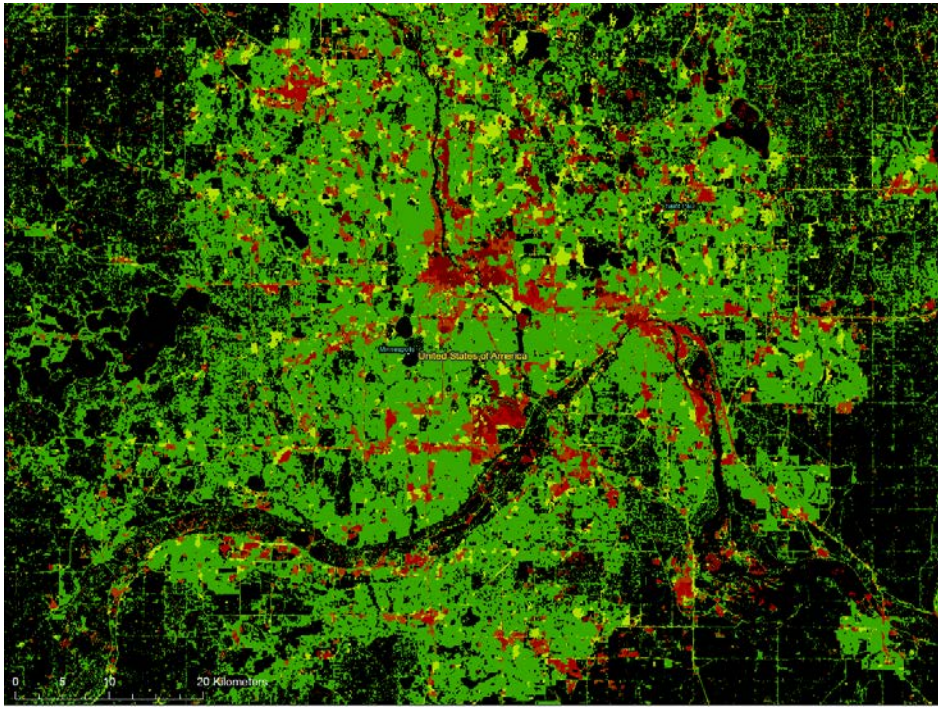

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GEO GROUP ON EARTH OBSERVATIONS

JRC EUROPEAN COMMISSION

ITC UNIVERSITY OF TWENTE.

ITC, 13-15 September 2017

https://www.utwente.nl/en/itc/hpi-forum/

Working groups:
definition of human settlements; data and civil society; disaster risk reduction; urban climate; population and migration; urban infrastructure; surface water dynamics; urban metabolism; China's one-belt system; capacity building.