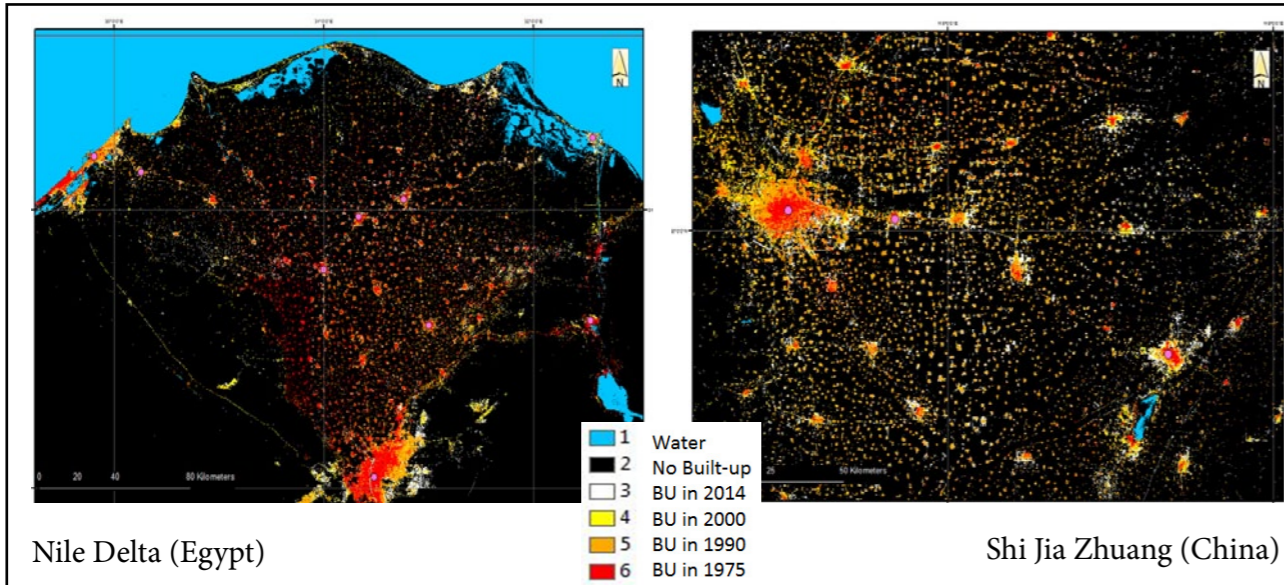


## Global Human Settlement Layers Open data to measure global exposure in time

Priority for Action 1 and 4, global targets, quantifying global exposure for improved risk analysis and for developing scenarios of future risks



**Application field:** Settlement information layers for exposure mapping in time. The Global Human Settlement project of the Joint Research Centres delivers four built-up layers and four population density layers for the years 1975, 1990, 2000, 2014 respectively. The Built-up layers are produced from Landsat imagery at resolution of 38 x 38m. The population density layers are derived by disaggregating the census data available at administrative layers to the built up. For practicality both built up and population layers are released at grid resolution of 250x250m.

**Methodology used / workflow:** The built-up layers are derived by processing the entire Landsat image archive. The imagery is processed automatically image by image based on a standardized information extraction methodology. The procedure first removes the clouds, it then classifies the imagery in built up areas and finally mosaics the built-up information products into global built-up mosaics for four periods. The global population density layers are derived by disaggregating the population totals available at the administrative unit to the finer scale built-up layers.

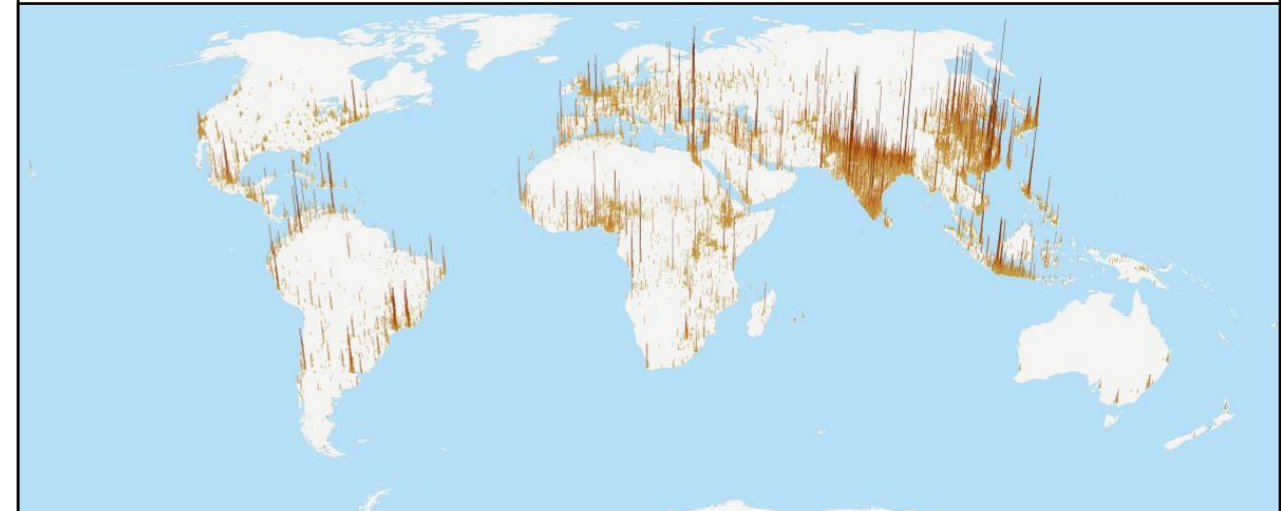
**Innovative impact:** The four built up and our population density layers are open source data, global and derived with the same methodology. The information can be used by users at local, regional, national and global level. The ability to analyse the growth of cities in the last 40 years and compare them is its most important characteristics.

**Key results:** The results can be used for quantifying exposure at local, regional, national and global level. The built-up and density layers are standardized information products in tie and space and thus suitable for spatial comparison, between cities, or temporal comparison, growth of the cities.

## Global Human Settlement Layers Open data to measure global exposure in time

Application status: Operational Service

Area of Application: Global and National, Regional



Global Population Density Map

The Global Human Settlement (GHS) framework produces global spatial information about the human presence on the planet over time. This in the form of built up maps, population density maps (figure above) and settlement maps. This information is generated with evidence-based analytics and knowledge using new spatial data mining technologies. The framework uses heterogeneous data including global archives of fine-scale satellite imagery, census data, and volunteered geographic information. The data is processed fully automatically and generates analytics and knowledge reporting objectively and systematically about the presence of population and built-up infrastructures.

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<http://ghsl.jrc.ec.europa.eu/data.php>  
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