

# MED MARITIME INTEGRATED PROJECTS Med-IAMER

## Adriatic Ionian ecoregion (AIE) Coastal Urbanization

### Definition

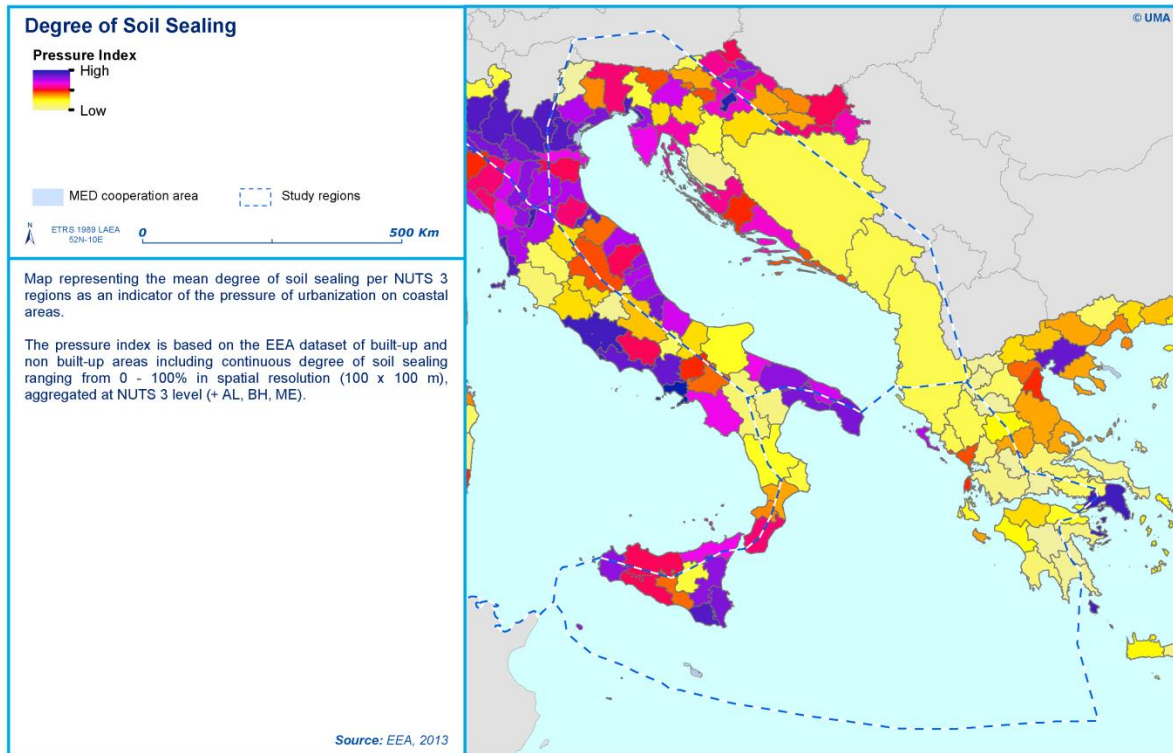
Urbanization is the increase over time of urban population in proportion to the region's rural population. Urbanization is studied in terms of its effects on the ecology and economy of a region. The driver also includes the occupation of land by urban land use and related infrastructures.

### Regional context

The Adriatic Ionian ecoregion (AIE) is characterized by high pressure resulting from unsustainable urban development in coastal areas. Almost all coastal areas of the countries surrounding the basin are subjected to high pressure from urban development due to increasing coastal population and tourism development.

Particularly, the Italian coast is affected by a high degree of linear urbanisation with peaks around centres of production and areas of intense tourist development. The coastal area of Slovenia, although without important changes in land use prior to 2000, is also subject to littoralisation, high urban development pressure and urban sprawl (IPA, 2013). The usual impacts concern loss of biodiversity, ecosystem fragmentation, and congestion. In the case of Croatia, though only a modest portion

(14.3%) of the coast is urbanised, the trends of increase in coastal migration, increase in tourism, and the lack of adequate water treatment facilities; are a significant threat to the pollution of coastal waters. In Montenegro, the coastal area has always been highly populated due to its limited size, resulting in a lack of space for new development. A survey for Albania shows that about 97% of the total population lives within 100 km from the coastline. Coastal development is also characterised by the construction of secondary homes, where especially foreign investors are increasingly becoming active (PAP/RAC, 2007). Finally, in Greece, the linear coastal development is a threat for coastal ecosystems, mainly due to touristic pressure. Here, there are many coastal zones where symptoms of saturation and over-development are shown (Beriatos, 2008) more significantly in the Eastern part of the country on the Aegean Sea.



### Highlighted features

The map shows the mean degree of soil sealing per NUTS3 region. The most densely populated NUTS regions stand out with highest values of sealed soils due to urbanization and infrastructures. Particularly, the NUTS3 regions of Puglia and in the Po delta (Italy) are highlighted, while the Croatian and Greek regions have relatively lower degree of soil sealing. This indicator, though coarse, shows clear trends of intensification in the soil sealed areas in the Western Adriatic region.

### Data/Indicator used

Indicator: Mean degree of soil sealing

The pressure indicator is based on the EEA raster data set (coverage EEA 39) of built-up and non-built-up areas including continuous degree of soil sealing ranging from 0 - 100% of soil sealed in spatial resolution 100m\*100m, aggregated at NUTS3 regions of the Med cooperation area.

### Gaps

Minor gaps are due to some non-cloud-free areas in the satellite images covering Northern Italy.

Data on the Balkan and non EU regions are not available at NUTS3 level, and therefore, the data presented for Albania, Montenegro, and Serbia are not very reliable.

### Limits of methodology

The aggregation to NUTS regions does not provide a detailed vision of the most sealed areas at a pixel scale. But at the ecoregion scale, the aggregated image is the best possible representation for the sake of clarity.

### Related Pressures

#### Soil sealing

Construction activities on shore (including also those related to other drivers, i.e. maritime transport, coastal and maritime tourism) and urban development result in

soil sealing. In the Mediterranean region, urbanization is mostly related to tourism development. A tendency that is expected to grow at an even higher pace in the future (WTO, 2012).

### Release of organic matter in coastal and marine waters

Urbanization contributes to the release of organic matter in coastal and marine waters through direct point-source discharges or through river water run-off. 37% of coastal settlements in the Mediterranean with a population of more than 2000 inhabitants operate without a wastewater treatment while the distribution of treatment plants is highly fragmented; with no sewage treatment in many cities on the Eastern coast of the Adriatic.

### Source of heavy metals

Urban waste water is also considered as a major source of heavy metals in combination with mining and industrial activity. PCBs are also found in the vicinity of urban and industrial sites while specifically for the Adriatic Sea, areas of concern in regard to high PCB levels in biotas are the coasts of Croatia and Albania.

### Eutrophication

Urban wastewater is considered one of the most important contributors to eutrophication as it is responsible for 45% nitrogen and 13% phosphorus emissions. In the Adriatic Sea these are mainly located to the northern and eastern parts of the coast.

## List of proposed indicators

The following table lists the indicators developed and mapped within Med-IAMER on the pressures and impacts of

urbanization on coastal (land) and marine environments. All maps, identified by the indicator ID, can be found at the project's web page:

<http://www.medmaritimeprojects.eu/section/med-iamer-redirect/outputs>

ID	Indicator description
UB01	Eutrophication
UB02	Degree of Soil Sealing
UB03	Level of Urban Sprawl per NUTS3 (under development)

## Bibliography

Beriatos, E. (2008) Uncontrolled Urbanization, Tourism Development and Landscape Transformation in Greece, Uncontrolled Urbanization, 44th ISOCARP Congress 2008.

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PAP/RAC (2007) State of the Art of Coastal and Maritime Planning in the Adriatic Region [http://www.plancoast.eu/files/Synthesis\\_Report\\_Final\\_WEB.pdf](http://www.plancoast.eu/files/Synthesis_Report_Final_WEB.pdf)

WTO (2012). Tourism in the Mediterranean: Growth, competitiveness and sustainability. In Euromed: Current Cooperation and Future Perspectives in Sustainable Tourism. Brussels, Belgium. [http://ec.europa.eu/enterprise/sectors/tourism/files/euromed-presentations/1-unwto\\_cabrini\\_en.pdf](http://ec.europa.eu/enterprise/sectors/tourism/files/euromed-presentations/1-unwto_cabrini_en.pdf)



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