

Indicator	
2	Area of built-up land
Measurement	
2.1	Percentage of built-up land by distance from the coastline
What should the measurement tell us?	
<p>We want to know the extent to which the coast has been built-up over the past several years because this will indicate the degree of pressure on the coast and the likelihood of further changes in the future. We also want to know whether development on the coast has been greater and more intense than in the wider region. This is why it is necessary to look at the area of built-up land in non-coastal areas as well as on the coast itself. Doing this should also help us uncover the <i>pattern</i> of development. For example, has development been characterised by building in a relatively narrow coastal strip or has it spread a considerable way inland?</p>	
Parameters	
(i)	Area of built-up land <sup>(1)</sup> in hectares in coastal NUTS 5 as a proportion of the area of built-up land in hectares in the wider reference region.
(ii)	Area of built-up land in hectares in non-coastal NUTS 5 as a proportion of the area of built-up land in hectares in the wider reference region.
(iii)	Percent of built-up land by distance from the coastline in 0-1km and 0-10km buffers.
Coverage	
Spatial	Temporal
Coastal NUTS 5; 0-1km and 0-10km buffers from the coastline	Corine Land Cover datasets: 1990 and 2000
Coastal NUTS 5	National land use surveys - at least three sampling points
Data sources	
<p>Data are available from the Corine Land Cover datasets for 1990 and 2000. However, CLC does not cover all countries. There was no coverage in 1990 for Finland, Sweden, UK, Cyprus, Malta and Turkey. By 2000, coverage had extended to all of those countries with the exception of UK and Turkey. Nevertheless, the lack of cover in 1990 means that comparisons with the past cannot be made using CLC and in such cases national datasets must be substituted. For national land use surveys that deliver datasets in shape format, steps 1-12 can be followed. When only numerical datasets are available, the products of step 1 and step 10 can be calculated using the same methodology. However, map 2 and graph 2 cannot be produced.</p>	

Methodology		
Steps		Products
1	For the wider reference region <sup>(2)</sup> , overlay NUTS 5 boundaries with CLC data for both 1990 and 2000 and clip polygons labelled 1.1, 1.2 and 1.3 for each <i>coastal</i> NUTS 5. Add up the area of the polygons (using GIS statistics function)	Area of built-up land in hectares within <i>each</i> coastal NUTS 5 for CLC 1990 and 2000
2	Repeat for each non-coastal NUTS 5	Area of built-up land in hectares within <i>each</i> non-coastal NUTS 5 for CLC 1990 and 2000
<i>All of the following steps should be taken for CLC 1990 and again for CLC 2000</i>		
3	For each coastal NUTS 5, divide the product of step 2 by its total area and multiply by 100	Percent of built-up land within <i>each</i> coastal NUTS 5
4	Add together the area of built-up land for every coastal NUTS 5	Total area of built-up land within <i>all</i> coastal NUTS 5
5	For each non-coastal NUTS 5, divide the product of step 3 by its total area and multiply by 100	Percentage of built-up land within <i>each</i> non-coastal NUTS 5
6	Add together the area of built-up land for every non-coastal NUTS 5	Total area of built-up land within <i>all</i> non-coastal NUTS 5
7	Add together the products of step 4 and step 6	Total area of built-up land within the wider reference region
8	Divide the product of step 4 by the product of step 7 and multiply by 100	<u>Built-up land in coastal NUTS 5 as a percentage of all built-up land within the wider reference region</u>
9	Divide the product of step 6 by the product of step 7 and multiply by 100	<u>Built-up land in non-coastal NUTS 5 as a percentage of all built-up land within the wider reference region</u>
10	Overlay buffers of 0-1km and 0-10km distance from the coastline with CLC data and clip polygons labelled 1.1, 1.2 and 1.3 for each buffer. Add up the area of the polygons labelled 1.1, 1.2 and 1.3 in each buffer (using GIS statistics function)	Total area of built-up land within the 0-1km and 0-10km buffers
11	Overlay buffers of 0-1km and 0-10km with CLC data and obtain the total area of land for each buffer	Total area of land within each buffer

12	For each buffer, divide the product of step 10 by the product of step 11 and multiply by 100	<u>Percentage of built-up land within each buffer</u>
<b>Presentation of the data</b>		
Map 1	For the wider reference region, the percentage of built-up land in each coastal NUTS 5 and in each non-coastal NUTS 5, for both CLC 1990 and 2000.	
Map 2	For the wider reference region, the percentage of built-up land in the 0-1km and 0-10km buffers, for both CLC 1990 and 2000.	
Graph 1	Pie charts showing the percentage of built-up land for the coastal and non-coastal NUTS 5 in 1990 and 2000 (or at equivalent sampling points if using national datasets).	
Graph 2	Bar chart showing the percentage of built-up land for the 0-1km and 0-10km buffers, for both 1990 and 2000 (or at equivalent sampling points if using national datasets).	
<b>Aggregation and disaggregation</b>		
The same methodology can be used to aggregate data at the provincial (NUTS 3), regional (NUTS 2) or national NUTS 0 levels.		
<b>Adding value to the data</b>		

## Notes

<sup>(1)</sup> Built-up land is defined by the Corine Land Cover classification as follows:

- 111 continuous urban fabric
- 112 discontinuous fabric
- 121 industrial or commercial units
- 122 road and rail networks and associated land
- 123 port areas
- 124 airports
- 131 mineral extraction sites
- 132 waste sites
- 133 construction sites

<sup>(2)</sup> For many countries the Corine coastline does not coincide with the coastline defined by NUTS. In some cases the difference can be as much as two kilometres. It is possible to adjust CLC for this discontinuity. The methodology for doing this is explained in Annex 1 of the Guidelines.