

E-1: Land uptake

1) General description	2
1.1) Brief definition	2
1.2) Units of measurement	2
1.3) Context	2
2) Relevance for environmental policy	2
2.1) Purpose	2
2.2) Issue	2
2.3) International agreements and targets	3
3) Methodology and guidelines	3
3.1) Data collection and calculations	3
3.2) Internationally agreed methodologies and standards	3
4) Data sources and reporting	4
5) References at the international level	4

1) General description

1.1) *Brief definition*

The indicator shows the amount of land taken up for transport infrastructure, industrial, urban, recreational development, waste disposal and other purposes, as well as the share of total land uptake in the country area.

1.2) *Units of measurement*

Land taken up is measured in square kilometres or hectares; the share of total land uptake in the country area is expressed as a percentage.

1.3) *Context*

Relation to other indicators from the Guidelines - This indicator does not relate to other indicators.

2) Relevance for environmental policy

2.1) *Purpose*

The indicator provides a measure of the impact on the environment and shows trends in the extent of land uptake from natural and semi-natural land.

2.2) *Issue*

Land uptake by transport infrastructure, urban and industrial development and other purposes has a high impact on the environment due to the sealing of soil as well as disturbances resulting from transport, noise, resource use, waste dumping and pollution. Transport networks add to the fragmentation and degradation of natural landscapes. The intensity and patterns of urban sprawl are the result of three main factors: socio-economic development, demand for housing and extension of transport networks. A high amount of land used for legal or illegal waste disposal is an indicator of unsustainable development.

2.3) International agreements and targets

International agreements and targets associated with the indicator are not available.

3) Methodology and guidelines

3.1) Data collection and calculations

Data should be provided for land uptake for mining and quarrying areas, for constructions, for manufacturing areas, for technical infrastructure, for transport and storage infrastructure, for commercial, financial and public services, for residential areas including recreational facilities, and for other uses (landfills, waste dumps, tailing pits and refuse heaps). The share of total land uptake in the country area can be calculated by the following formula:

$$\text{Share of total land uptake in the country area (\%)} = \frac{\text{(area of land uptake in thousands of hectares or km}^2 \text{ / the total area of the country in thousands of hectares or km}^2 \text{)}}{1}$$

Land use by urban and related infrastructures is generally calculated using statistical data. In a few countries of South-Eastern and Eastern Europe, Caucasus and Central Asia these data are supplemented by satellite images. Difficulties often arise in accounting for land used illegally for landfills, waste dumps, tailing pits and refuse heaps.

3.2) Internationally agreed methodologies and standards

The Food and Agriculture Organization (FAO) is working on the harmonization of classification systems and databases to improve national and international land-use information. This includes the development of definitions and protocols, a computerized land-use database, and a broadly accepted structure of land use classifications. The European Environment Agency (EEA) has developed the indicator "Land take by transport infrastructure".

4) Data sources and reporting

Data on land use in countries of South-Eastern and Eastern Europe, Caucasus and Central Asia are generally available from government authorities responsible for cadastres, land-use planning and environmental protection as well as from statistical agencies and local authorities. Data on land uptake are published in annual environmental reports and/or in statistical yearbooks in a number of countries. Statistical agencies report data to the UNSD Environment Statistics Database. FAO also collects data from its member countries.

5) References at the international level

- FAO: <http://www.fao.org>;
- Indicators of Sustainable Development: Guidelines and Methodologies, Third Edition, United Nations 2007: <http://sustainabledevelopment.un.org/content/documents/guidelines.pdf>;
- UNSD: <http://unstats.un.org/unsd/environment/>;
- EEA: <http://www.eea.europa.eu/themes/landuse>.