Statistics Division

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Indicators on Land Use and Agriculture:

Land uptake

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UNSD/UNECE Joint Meeting on Environmental Indicators
(Geneva, 31 August - 2 September 2009)

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Indicators on Land Use and Agriculture

Guidelines for the Application of Environmental Indicators in Eastern Europe, Caucasus and Central Asia/ECE/BELGRADE.CONF/2007/INF/6

- Land uptake (off its production function)
- Area affected by soil erosion

Land uptake concepts

- **Country area**
  - **Land area**
    - **Agricultural area**
      - **Arable land and Permanent crops**
        - **Arable land**
          - **Temporary crops**
          - **Temporary meadows and pastures**
          - **Fallow land**
        - **Permanent crops**
      - **Permanent meadows and pastures**
    - **Forest area**
    - **Other land**
  - **Inland water**

Land uptake concepts

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Land uptake concepts

Land uptake (hectare/ sq kms) as a % of total national territory

Important land use categories:

- **Transport infrastructure**
- **Urbanized areas (urban development and by landfills, waste dumps, tailing pits and refuse heap)**
- **Industrial zones**
- **Open air mines**

- **Inclusion of a map recommended**

Land uptake definitions and units

Brief definition:

- Land uptake by transport infrastructure and urban development and by landfills, waste dumps, tailing pits and refuse heaps in a country

Unit of measurement :

- Can measured both in absolute values (hectares or square kilometres) and as percentage of total national territory
- Includes contributions of the various land-cover categories to land uptake as a percentage of the total territory

Land uptake and environmental policy

Relevance for environmental policy for land uptake indicator

The purpose of the indicator is to provide:

- measure of the impact on the environment and shows trends in the encroachment of artificial land developments on natural and semi-natural land

Land uptake issues

Issue of concern:

- Land uptake by transport infrastructure and urban development and by landfills, waste dumps, tailing pits and refuse heaps has the highest impact on the environment due to sealing of soil as well as disturbances resulting from transport, noise, resource use, waste dumping and pollution.

Land uptake issues

Unsustainable development

- A high percentage of land used for waste dumps, landfills, tailing pits and refuse heaps for legal or illegal waste disposal is an indicator of unsustainable development

Land uptake agreements / targets

International agreements and targets for land uptake indicator

- None.

Land uptake methodology

Methodology and guidelines for land uptake indicator

Data collection and calculations

- **Results are presented as: the average change, percentage of the country's total area**

- **Percentage of the various types of land cover used by**
  transport infrastructure,
  urban development and landfills,
  waste dumps,
  tailing pits and refuse heaps in a country

Land uptake methodology

Methodology and guidelines for land uptake indicator

Data collection and calculations

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

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Land uptake data collection

Methodology and guidelines for land uptake indicator

Period of reporting is every 10 years

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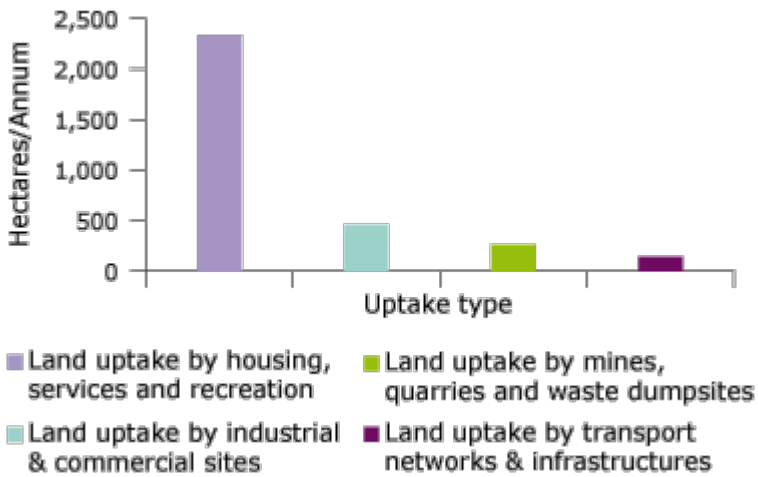
Ireland land uptake example

Increase in Artificial Land Cover 1990-2000 ***(Source: EPA/EEA)***



Artificial surfaces grew by 31 per cent between 1990 and 2000 but still constituted only 1.8 per cent of national land cover in 2000.

http://www.epa.ie/environment/biodiversity/urbanisation/

Land use standards

Internationally agreed methodologies and standards for land uptake indicator

- **FAO and ISWG-ENV 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 structure, and a broadly accepted structure of land-use classifications**
- **FAO Land Cover Classification System (LCCS) under review for ISO standard.**

Land use data sources

Data sources and reporting

- **Data on land use in EECCA countries are generally available from government authorities responsible for cadastres and land-use planning and environmental protection and from statistical agencies and local authorities**

- **Data on land uptake off productive function are published in annual environmental reports and/or in statistical yearbooks in a number of countries**

Land use data sources

Data sources and reporting

- Statistical agencies report data to the UNSD Demographic Statistical Database
- FAO also collects data from its member countries (http://FAOSTAT.fao.org)

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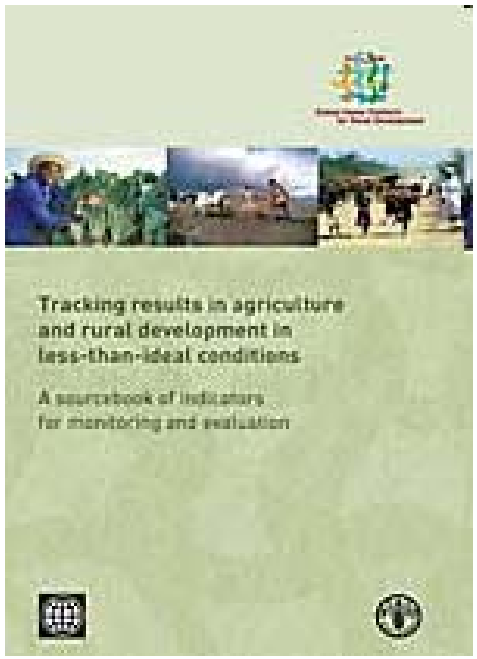
FAO/World Bank Sourcebook



Tracking results in agriculture and rural development in less-than-ideal conditions:

A sourcebook of indicators for monitoring and evaluation

http://www.fao.org/docrep/011/i0380e/i0380e00.htm

Other Land use indicators

- Proportion (%) of land area covered by forest
- Rate of deforestation (%)
- Proportion (%) of land area under permanent crops

Land use references

References at the international level

http:/www.fao.org

http://faostat.fao.org/site/377/default.aspx#ancor

http://www.fao.org/docrep/011/i0380e/i0380e00.htm

http://unstats.un.org/unsd/environment

http://www.eea.europa.eu/themes/landuse

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