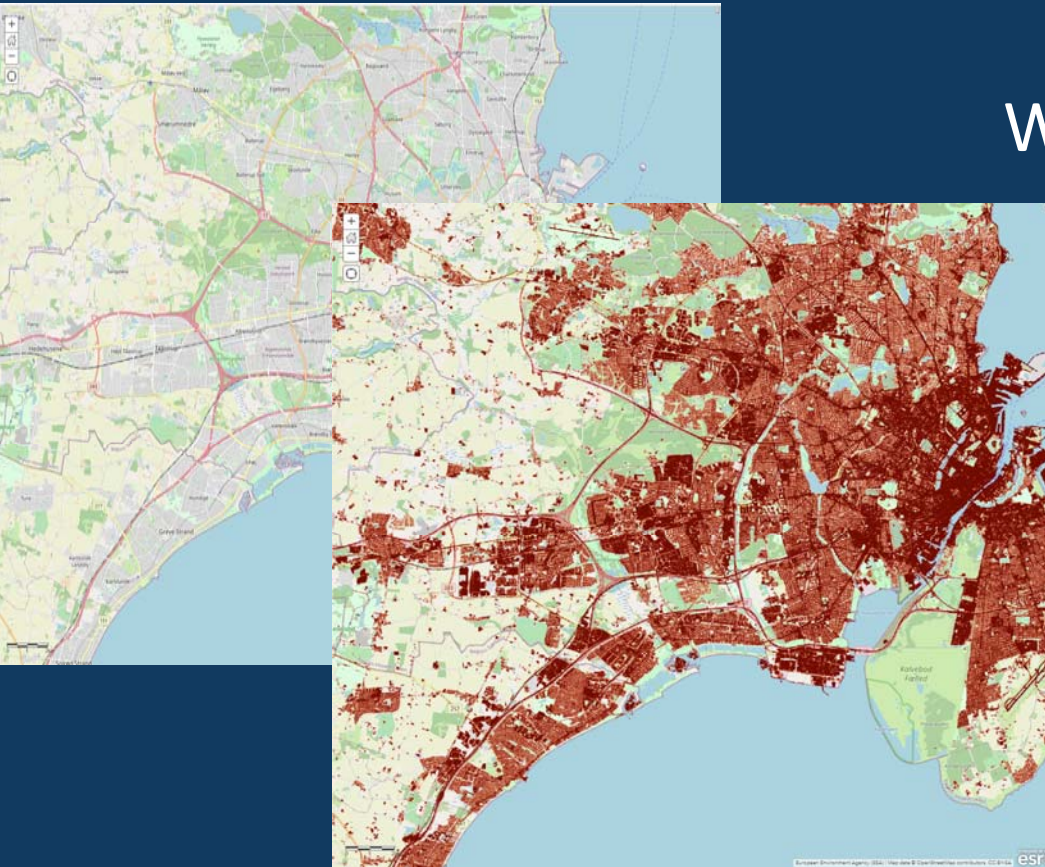


What's driving land take in the EU & which impacts does it have?

Eva Ivits

European Environment Agency

SURFACE online conference, 16th November , 2020



European Environment Agency

To provide **relevant**, reliable, **targeted** and **timely** information to policy-makers and the public.

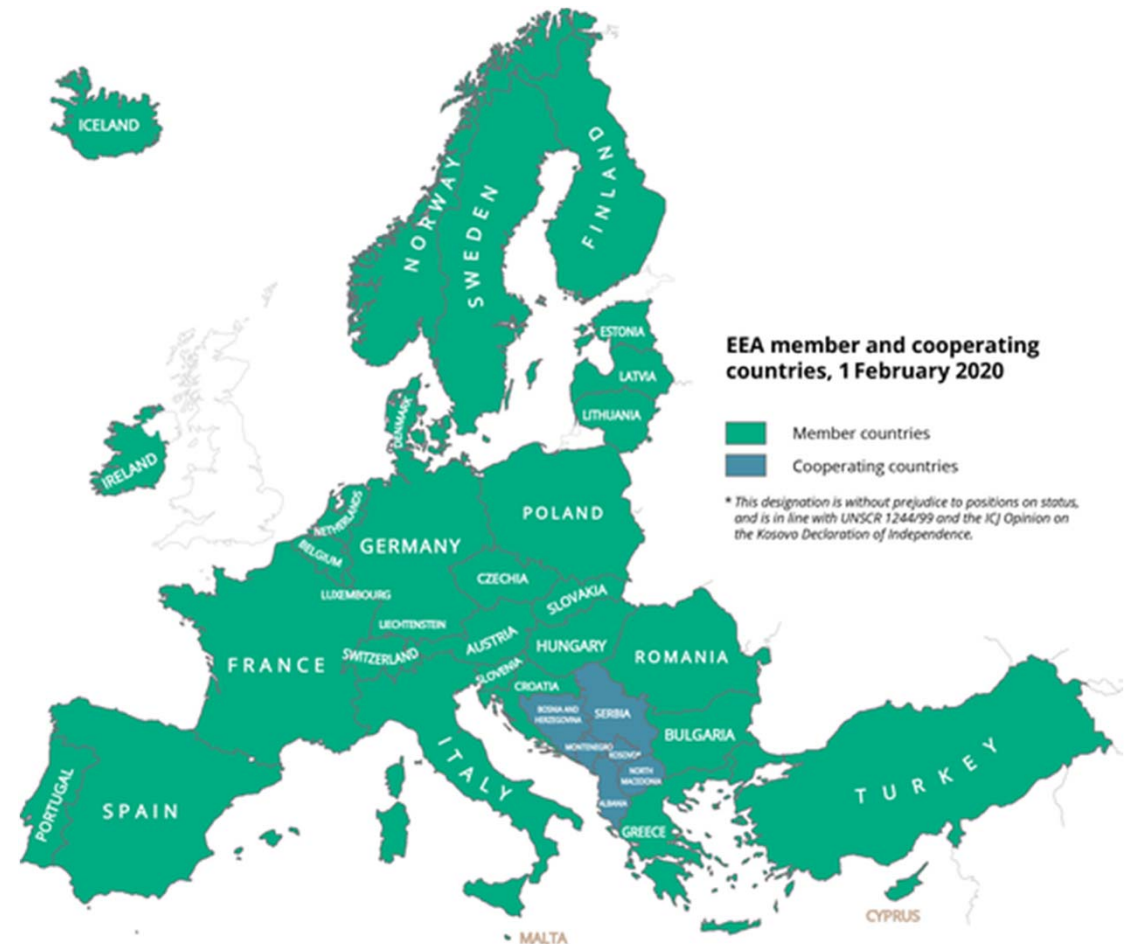
To help achieve **significant** and **measurable** improvements in Europe's environment and to support sustainable development.

Our mandate:

The regular production of the State and Outlook of Environment in Europe in Europe→ a.o. Land Take

EEA produces and makes use of Copernicus Land Monitoring Service (CLMS) datasets:

<https://www.eea.europa.eu/about-us/who/copernicus-1>



How to monitor land take?

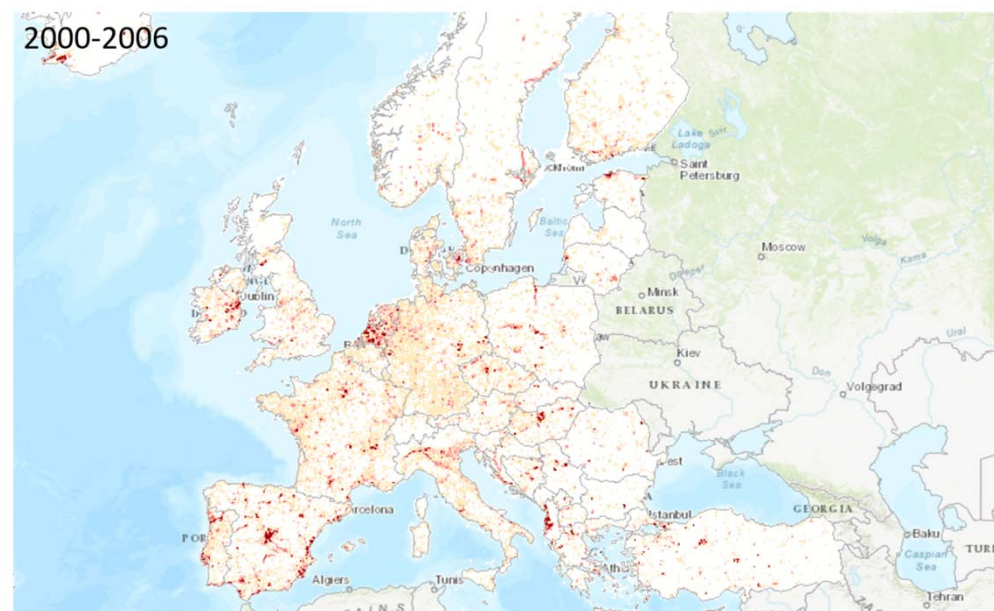
Land take definition (EEA, 2019):

“...change in the area of agricultural, forest and other semi-natural land taken for urban and other artificial land development. Land take includes areas sealed by construction and urban infrastructure, as well as urban green areas, and sport and leisure facilities.”
(<https://www.eea.europa.eu/data-and-maps/indicators/land-take-3/assessment>).

EEA solution for a pan European, transparent and harmonized monitoring scheme: Integrated Data Platform system infrastructure and the Corine Land Cover accounting layers¹. Flexible accounting for inclusion/exclusion of urban green areas

(<https://www.eea.europa.eu/themes/landuse/land-accounting>).

CLC accounting layers: combined status and change layers.	“MMU” ≥ 5 ha
Time series (nr of countries)	2000 (39) 2006 (39) 2012 (39) 2018 (39)

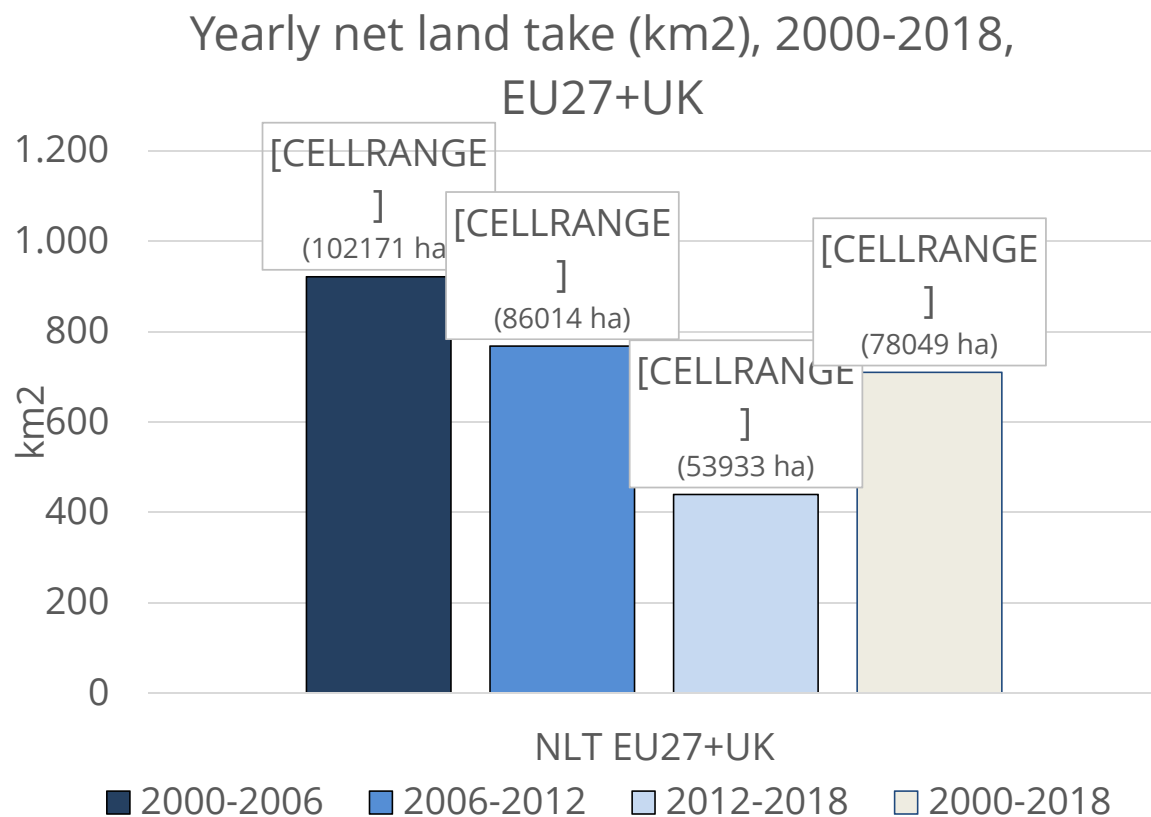


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¹ <https://www.eea.europa.eu/data-and-maps/data/corine-land-cover-accounting-layers/clc-accounting-layers>

Land take and net land take in Europe



- In some cases artificial land is returned to other land categories which balances between taken and reused land (i.e. by land recycling or re-cultivation); this allows for net land take accounting.
- Policy target: EC Roadmap to a Resource Efficient Europe (COM(2011) 571) – “no net land take by 2050”.
- Land take and net land take increases in all periods but the amount of increase was less and less.
- Strongest drop in land take was seen after 2012, most probably due to economic recession:
 - Expansion of construction sites halved
 - Decrease in expansion of industrial and commercial sites

EEA dashboards offer km², ha and % values:

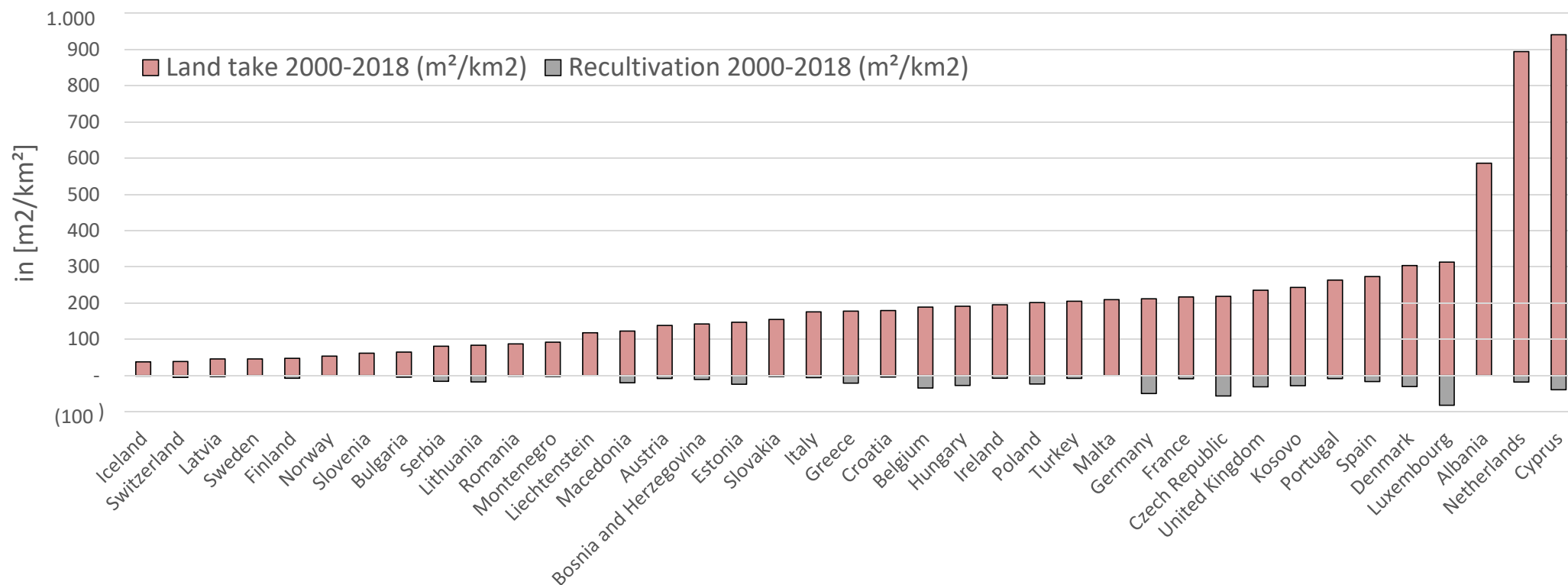
<https://www.eea.europa.eu/data-and-maps/dashboards/land-take-statistics>

Indicator:

<https://www.eea.europa.eu/data-and-maps/indicators/land-take-3/assessment>

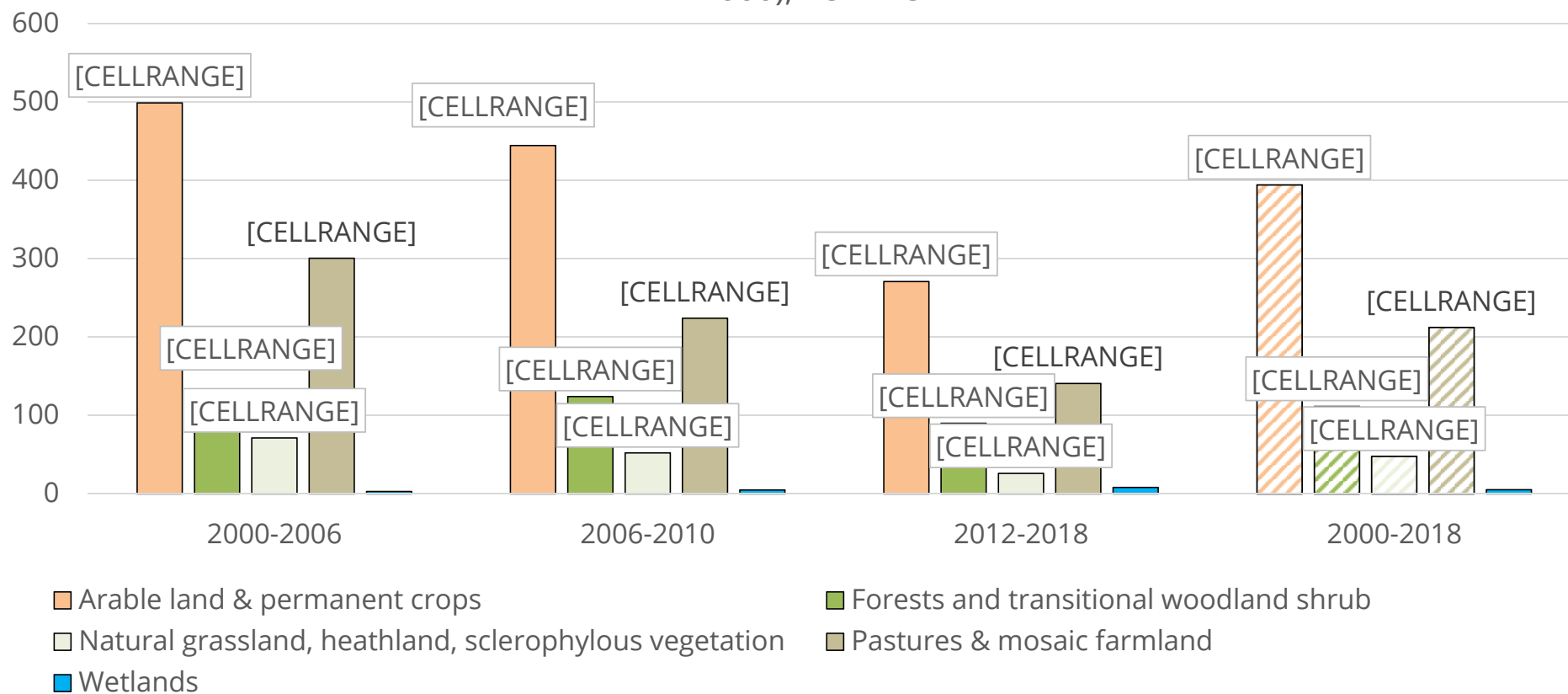
Land take and land recultivation

Yearly land take and land recultivation in the period 2000-2018 (in proportion of country area)



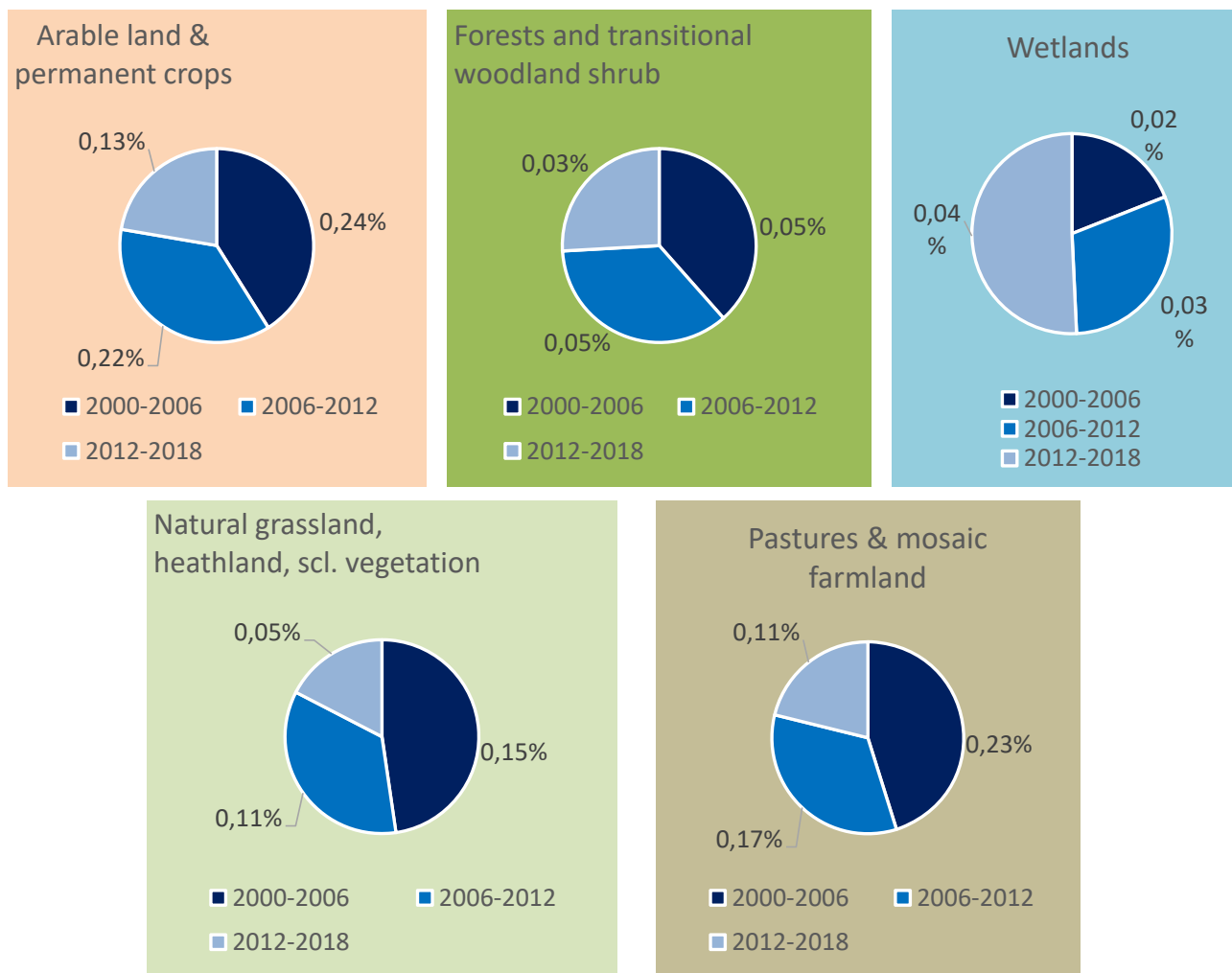
Spread of artificial and urban areas

Distribution of yearly land take on land covers (in km²/yr and in % of artificial land in 2000), EU27+UK



Land cover lost due to land take

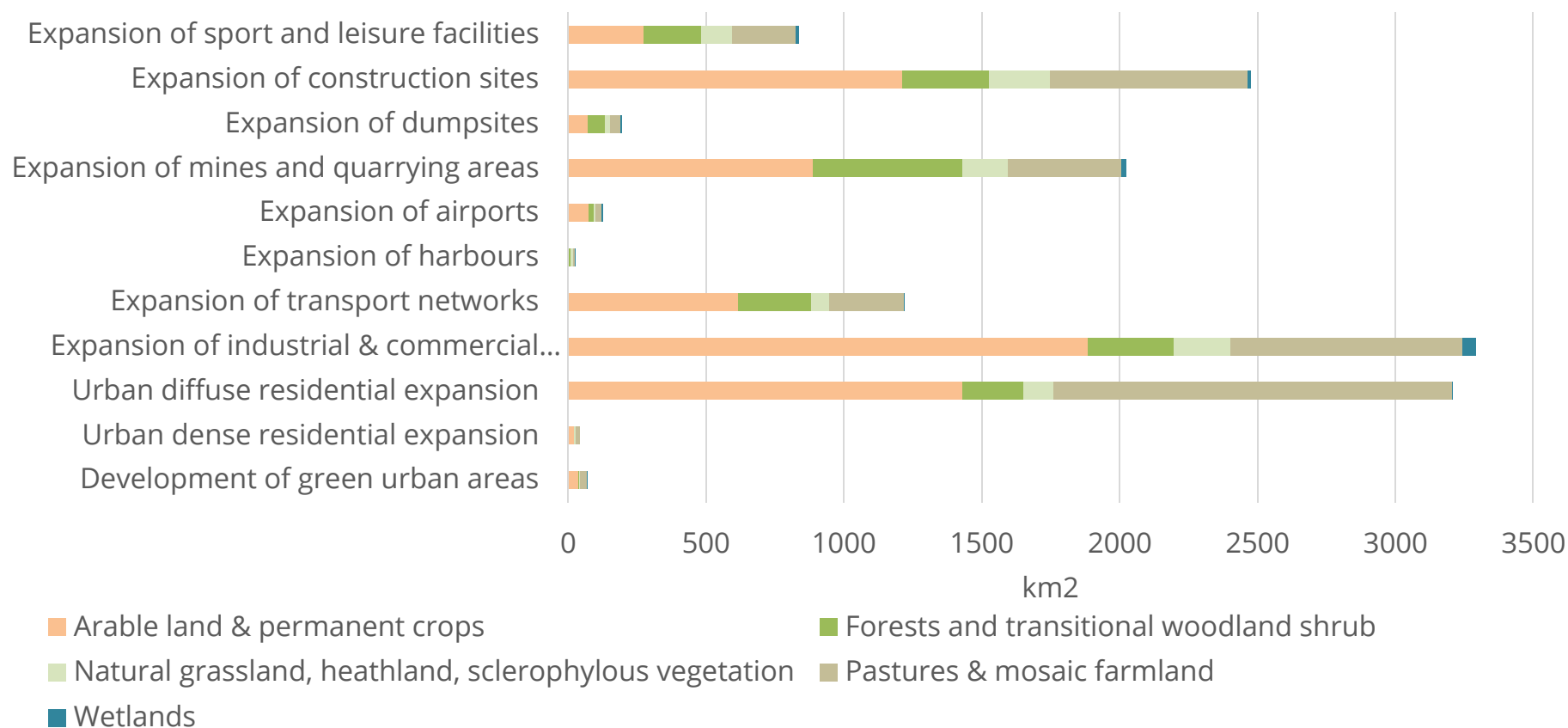
% of the land cover in 2000 lost due to land take (EU27+UK)



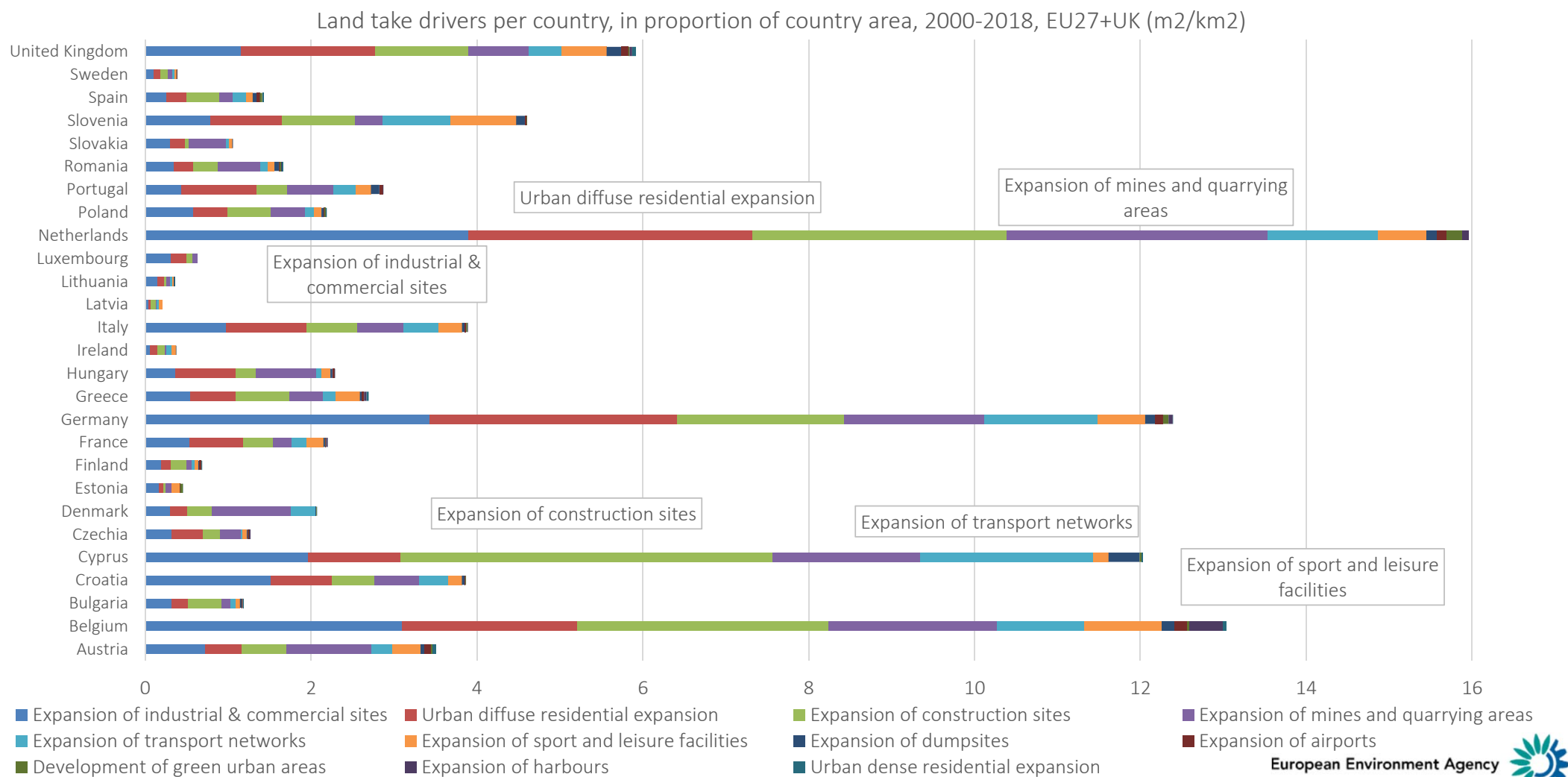
- In terms of their area in 2000, arable lands and permanent crops lost most surface due to land take.
- Although in absolute terms significant proportion of land take happened in forests, compared to the 2000 forest area only little forest was lost.
- Wetlands were the only land cover where land take increased, even though it was on small absolute (proportion of land take) and relative (proportion of 2000 wetlands) surface

Land use processes driving land take in the EU

Land take drivers per land cover, 2000-2018, EU27+UK (km²)



Land use processes driving land take in countries



Policies to reduce land take in countries

Region	Land Take Target
EU	Achieve no net land take by 2050
Austria	Reduce net land take to 2.5 ha/day in 2030 currently 12 ha/day
Belgium-F	To decrease land take gradually: 2016: daily land take 6ha per day (baseline) 2025 interim target 3ha per day 2040 final target 0ha per day / “land take neutral”
France	To halve land take at the expense of agricultural land until 2020 and reduce urban sprawl
Germany	To reduce land take for settlements and traffic routes to less than 30 ha/d by 2030 currently: about 60 ha/d
Luxemburg	To reduce land consumption from 1.3 ha/day (average 2000 – 2006) to 1 ha by 2020, and 0 ha by 2050.
Slovakia	30% of agricultural soils are protected from land take and bound to a fee if land take cannot be avoided, ranging from 0.5 and 20 € / m ² for agricultural land and up to 100 € / m ² for vineyards:

Source: 2020 EIONET Questionnaire on Land Take

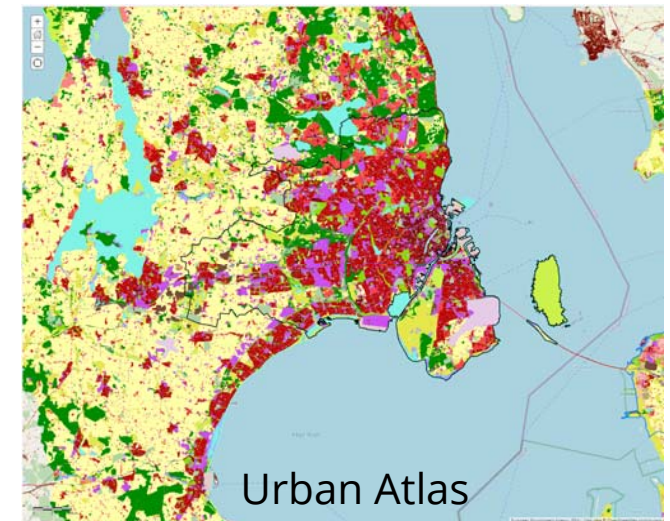
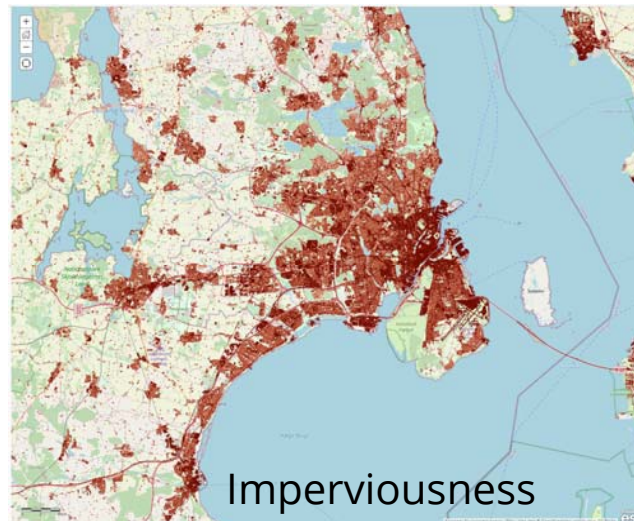
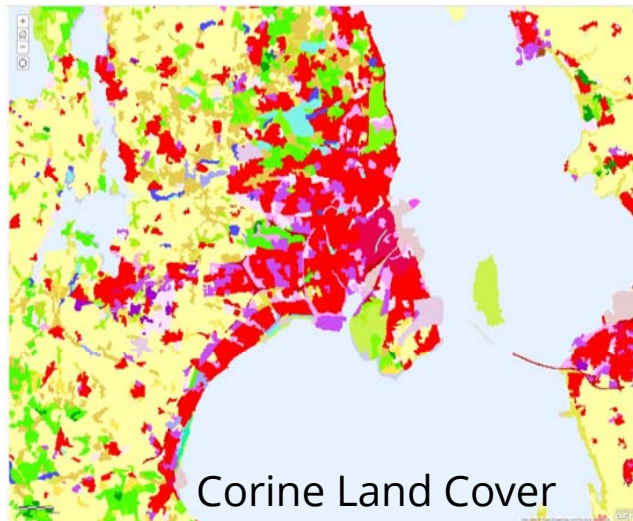
The EU target is non-binding, and very few EEA Member States have quantitative policy targets to reduce land take:

- 17 EEA Member States monitor land take on a regular basis
- most common input data are orthophotos and real estate cadastres in high resolution (parcel size) followed by CORINE Land Cover data.

Land take: data constraints

Can we measure land take with available data?

- Spatial resolution of Copernicus Corine Land Cover: only changes above 5 ha are considered -> scattered urban sprawl is not captured
- Imperviousness offers high resolution but does not allow to know what type of land has been lost.
- Urban Atlas offers high resolution and detailed land cover but only for Functional Urban Areas (FUAs)

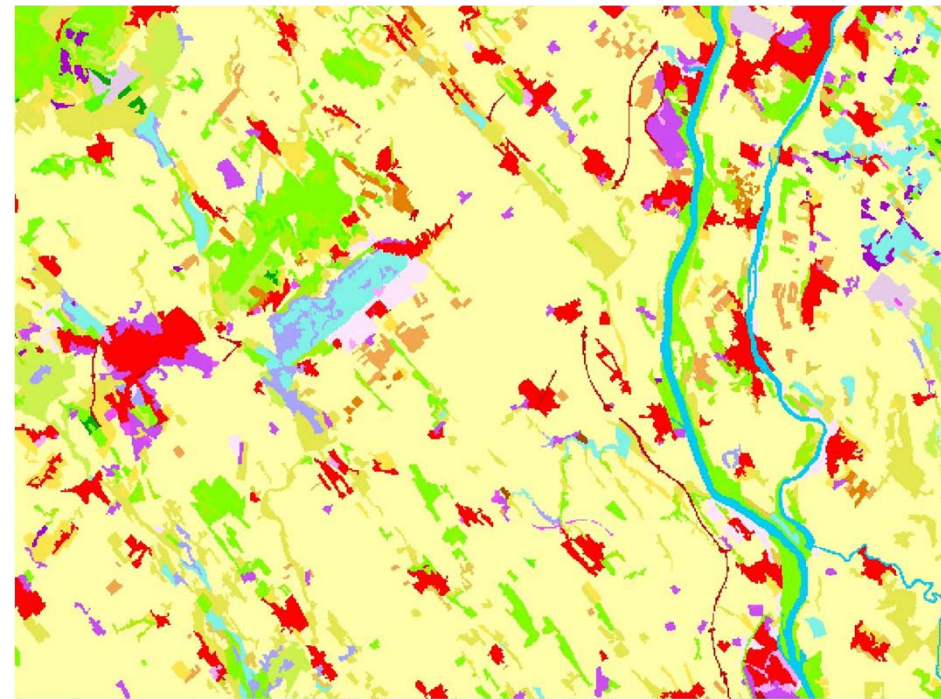


Land take: data constraints solutions

Corine land covers have a coarse spatial resolution but it is the only long time series that gives a coherent overview of land take at the EU level, which is comparable between European countries.

Solutions:

- Immediate
 - Copernicus Urban Atlas
 - Copernicus Imperviousness: monitor sealing of Corine land covers <https://www.eea.europa.eu/data-and-maps/dashboards/imperviousness-in-europe>
- Mid term
 - New EEA dataset: CLC enhanced by high resolution data (Urban Atlas, Imperviousness, Open Street Map)
- Long term
 - new generation of high resolution Copernicus land cover/land use data (CLC+).
 - Country reports: cooperation with member states via Eionet



Conclusions

Observed patterns:

- Strongest drivers of land take are: 1) expansion of industry and commercial sites, 2) diffuse urban expansion, 3) constructions.
- Land take increased during 2000-2018 but the rate of increase slowed down.
- Strongest drop in land take was seen after 2012, in expansion of construction sites and of industrial and commercial sites.
- Development of green urban areas and dense urban expansion are the lowest portions of land take.
- Most land take impacted arable land and permanent crops as well as pastures and mosaic farmlands.

Options to manage land take:

- Land monitoring at European level - invest in higher resolution data to make data more relevant to situation and needs in countries (ongoing action through the Copernicus programme)
- Discourage diffuse urban expansion - to reduce habitat fragmentation, soil sealing and pollution and improve flood protection.
- Promote compact city planning that prioritise urban densification, brownfield management and land reuse (recycling).
- Policy incentives to increase land recultivation and steer the drivers behind land take.

Thank you for your attention!

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