Planbureau voor de Leefomgeving

Sustainable Urbanization and land-use in European Regions

ESPON Roundtable, 27 January 2022

David Evers

Organization of presentation

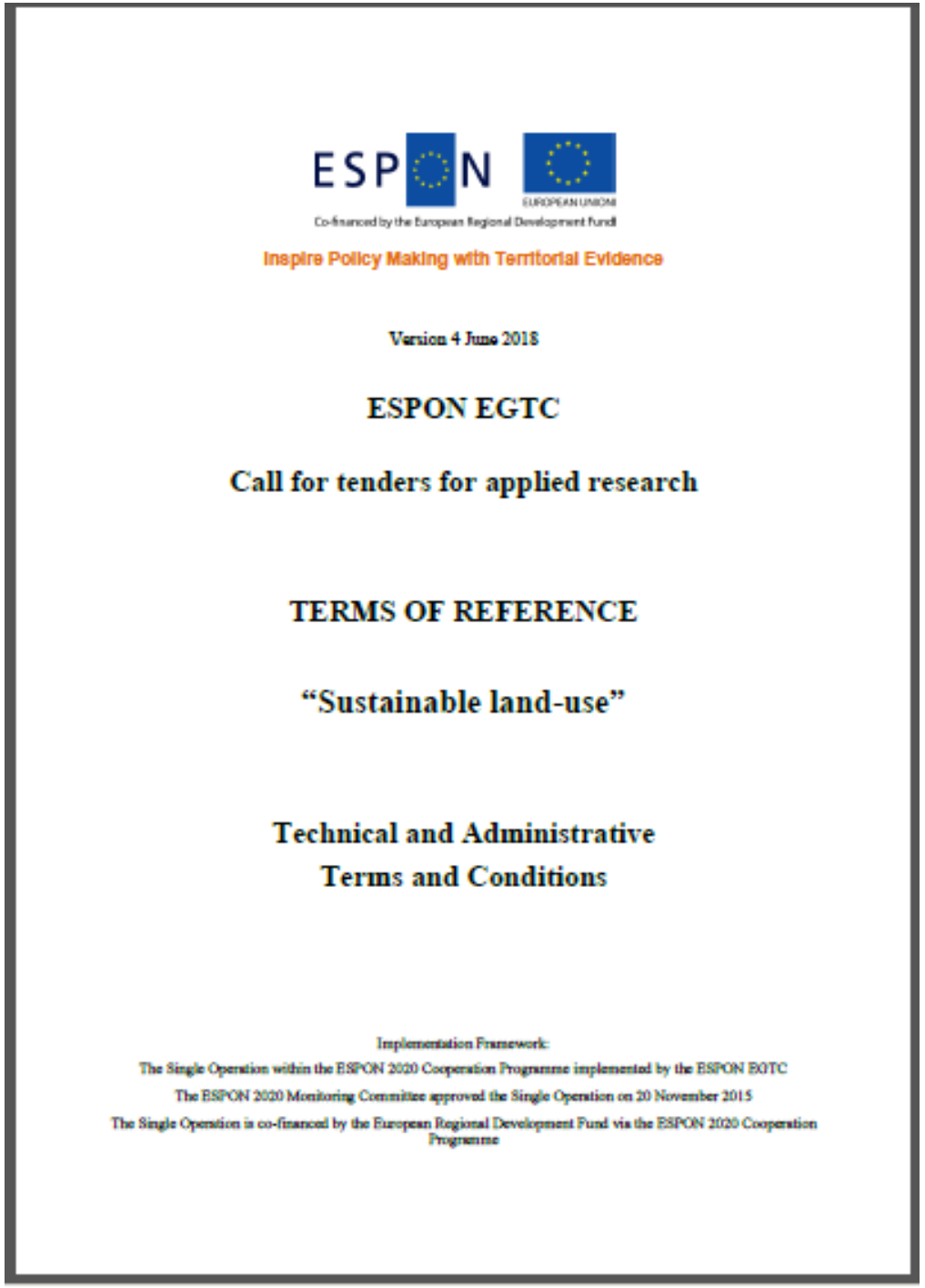
- **Introduction to the SUPER project**

- **Lesson 1: learn from past and future developments**
  - Based on analysis of the 2000-2018 period / scenarios for the 2020-2050 period

- **Lesson 2: Interventions can and do affect urbanization and land use**
  - Based on analysis of interventions and case studies

ESPON call

“The service shall provide evidence, recommendations and measures on how sustainable land use can be promoted and how **land-take** and **urban sprawl** can be avoided, reduced and compensated in Europe, its cities and regions”


ESPON

EUROPEAN UNION

Co-financed by the European Regional Development Fund

Inspire Policy Making with Territorial Evidence

Version 4 June 2018

ESPON EGTC

Call for tenders for applied research

TERMS OF REFERENCE

“Sustainable land-use”

Technical and Administrative
Terms and Conditions

Implementation Framework:

The Single Operation within the ESPON 2020 Cooperation Programme implemented by the ESPON EGTC

The ESPON 2020 Monitoring Committee approved the Single Operation on 20 November 2015

The Single Operation is co-financed by the European Regional Development Fund via the ESPON 2020 Cooperation Programme

SUPER tender

- Sustainable Urbanization and land-use Practices in European Regions

- New terminology
  - Land take => urbanization
  - Urban sprawl => urban form
  - Sustainability => balance of 3 Ps

https://www.espon.eu/super


ESPON

Project Proposal

To carry out the

ESPON Applied Research Project

"sustainable land-use"

SUPER

Sustainable Urbanization and land-use Practices

in European Regions

Application Form

Part B - TECHNICAL PROPOSAL outline

3 August 2018

PBL Netherlands Environmental Assessment Agency

Bundesinstitut für Bau-, Stadt- und Raumforschung

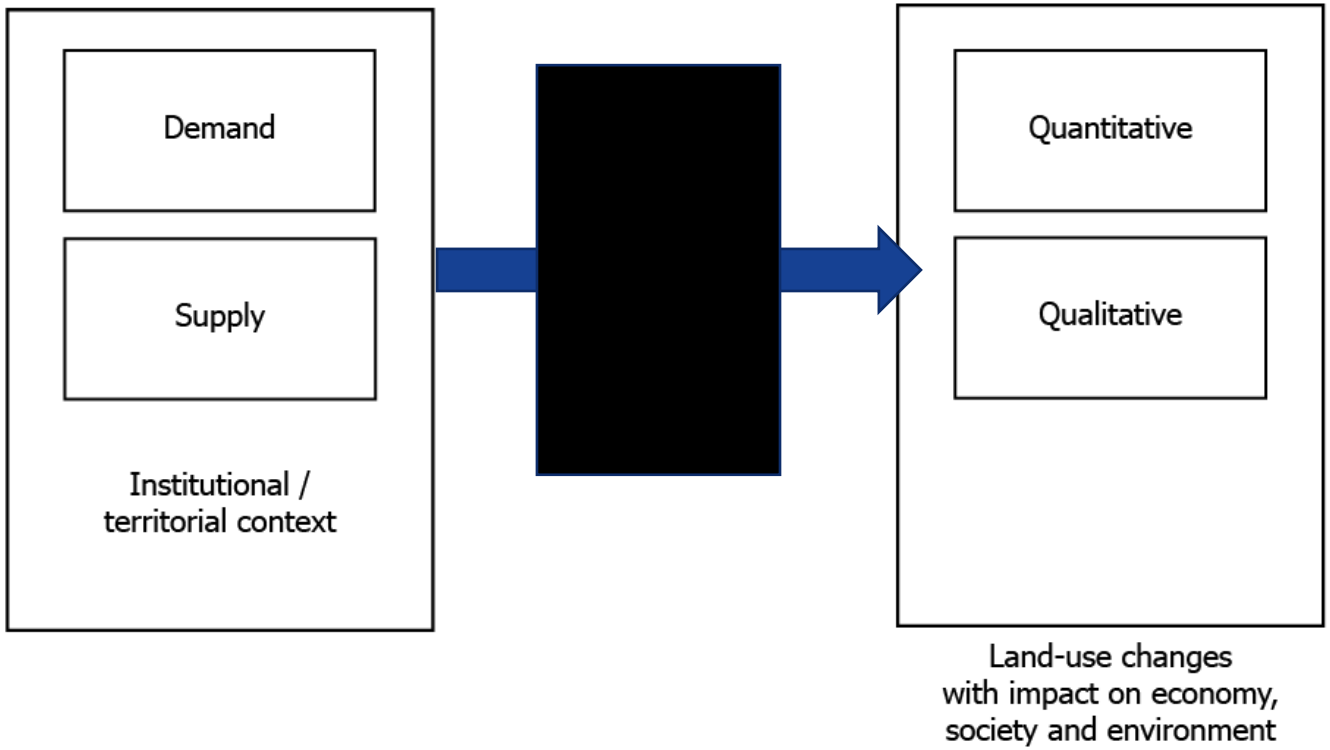
POLITECNICO DI TORINO

ÖIR

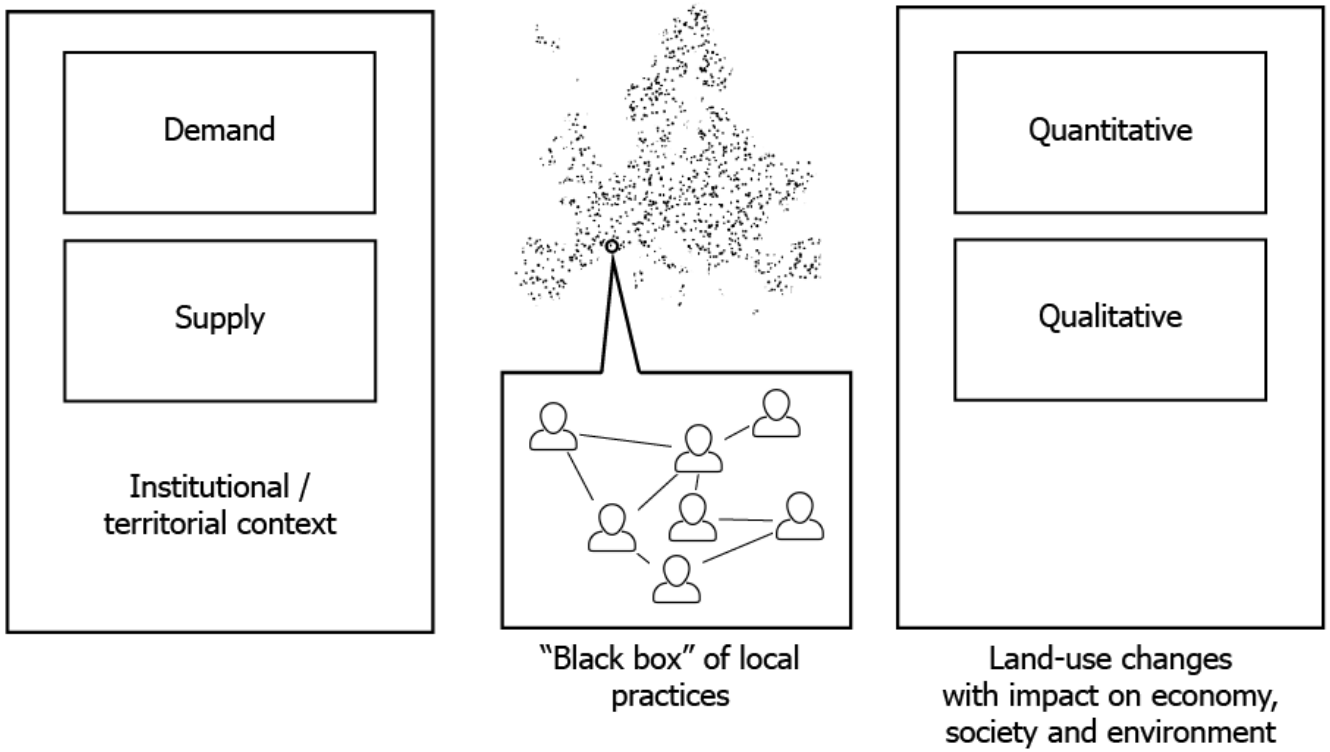
URBANEX

EUROREG

SUPER conceptual framework

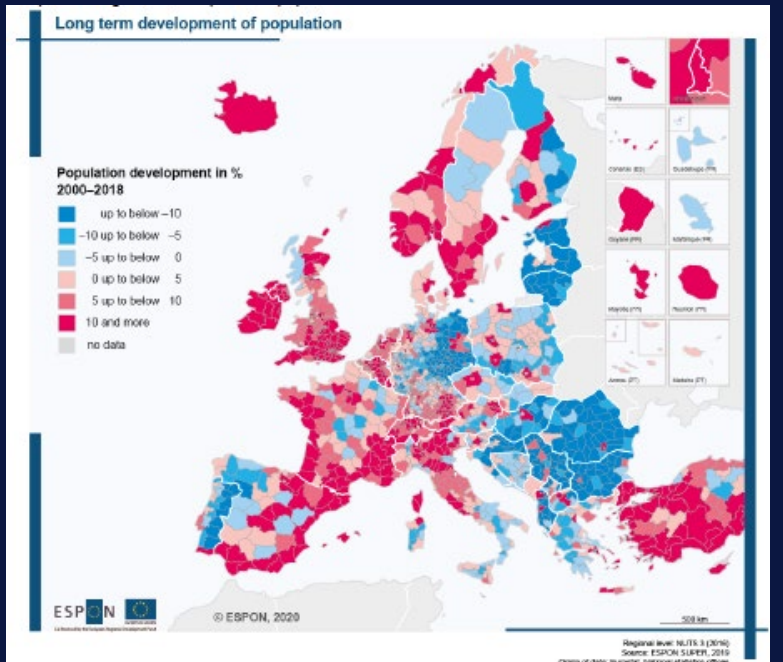


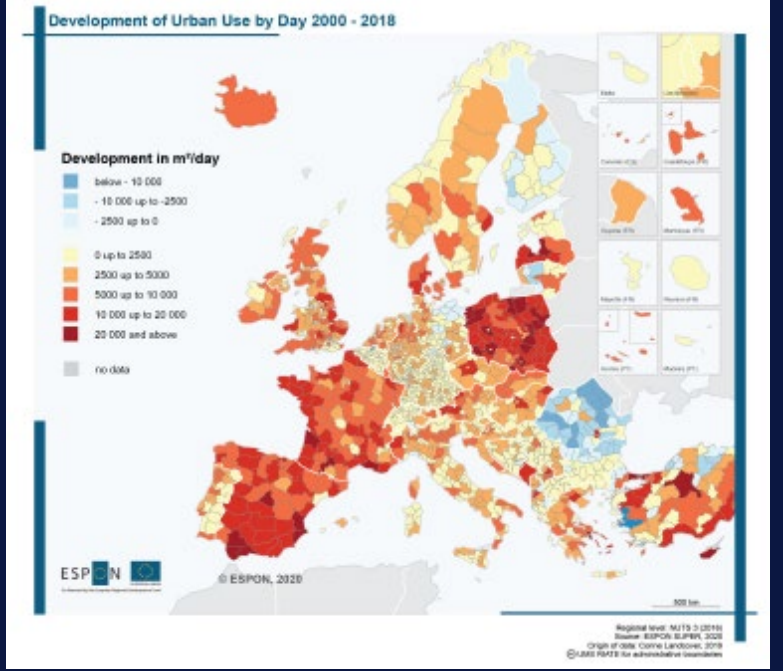
SUPER conceptual framework



1

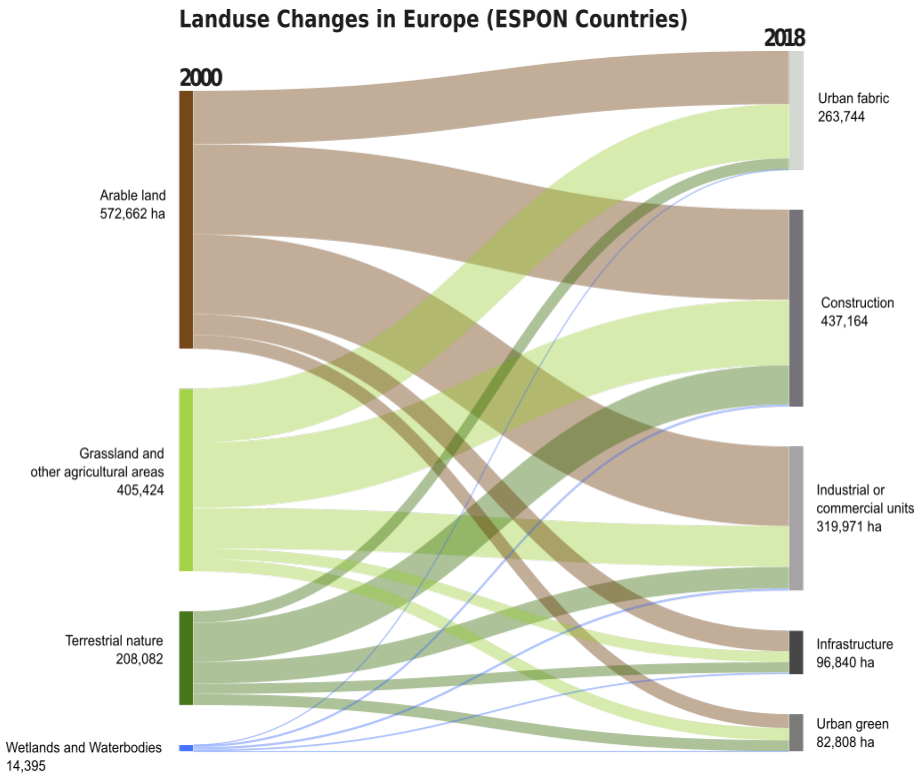
Evidence on urbanization and land-use developments in Europe: past and future

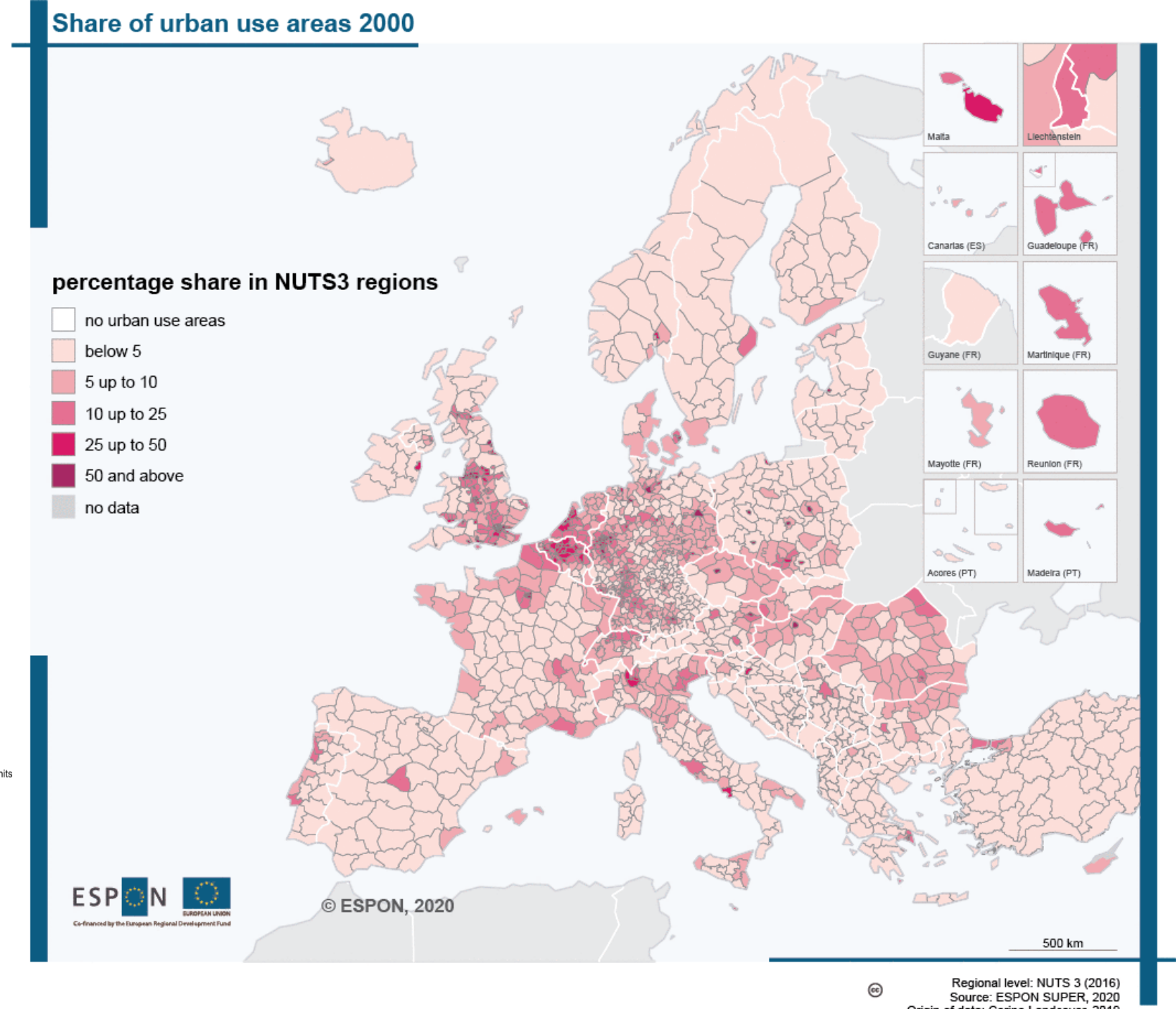




Between 2000-2018, about 1.17 million hectares of land was converted into urban use.

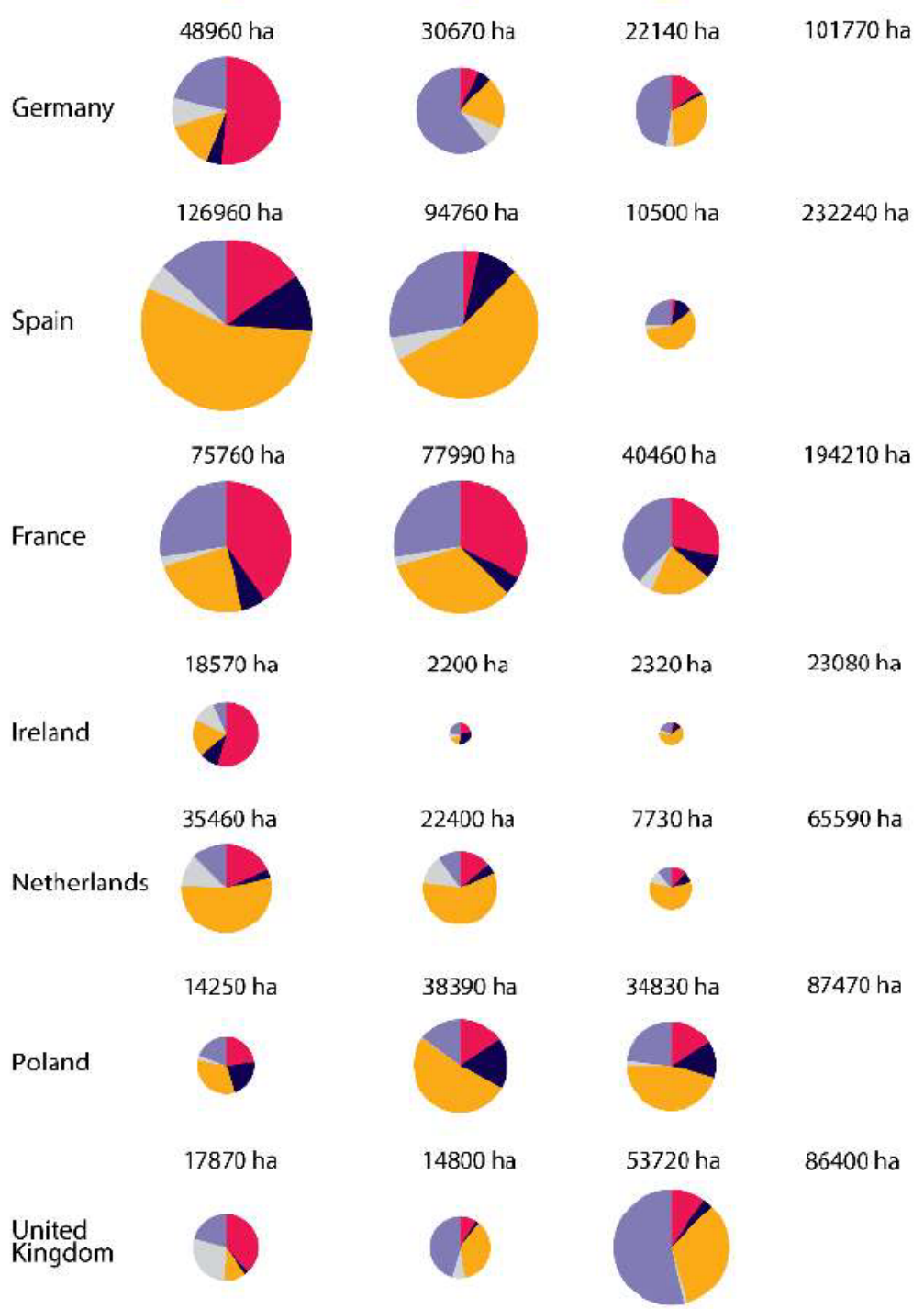
This is approximately 250 football fields per day (>0)





National differences

- Big builders = big countries: ES (construction sites), D, F (primarily housing)
- Declining rates: ES, F, NL (urban green), IE
- Increasing rates: PL (infra and construction sites), UK (urban green => industrial)

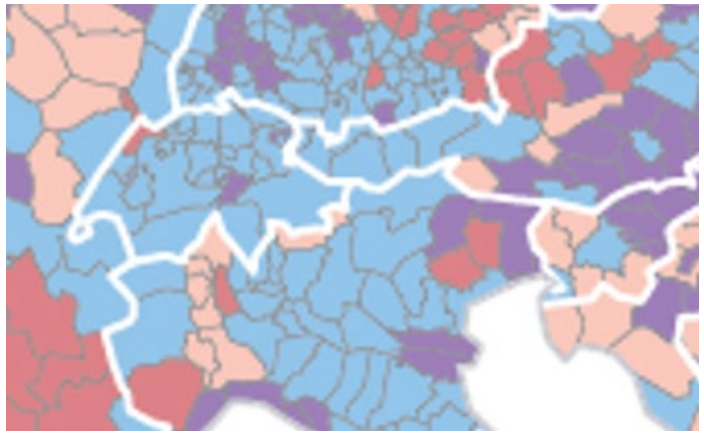


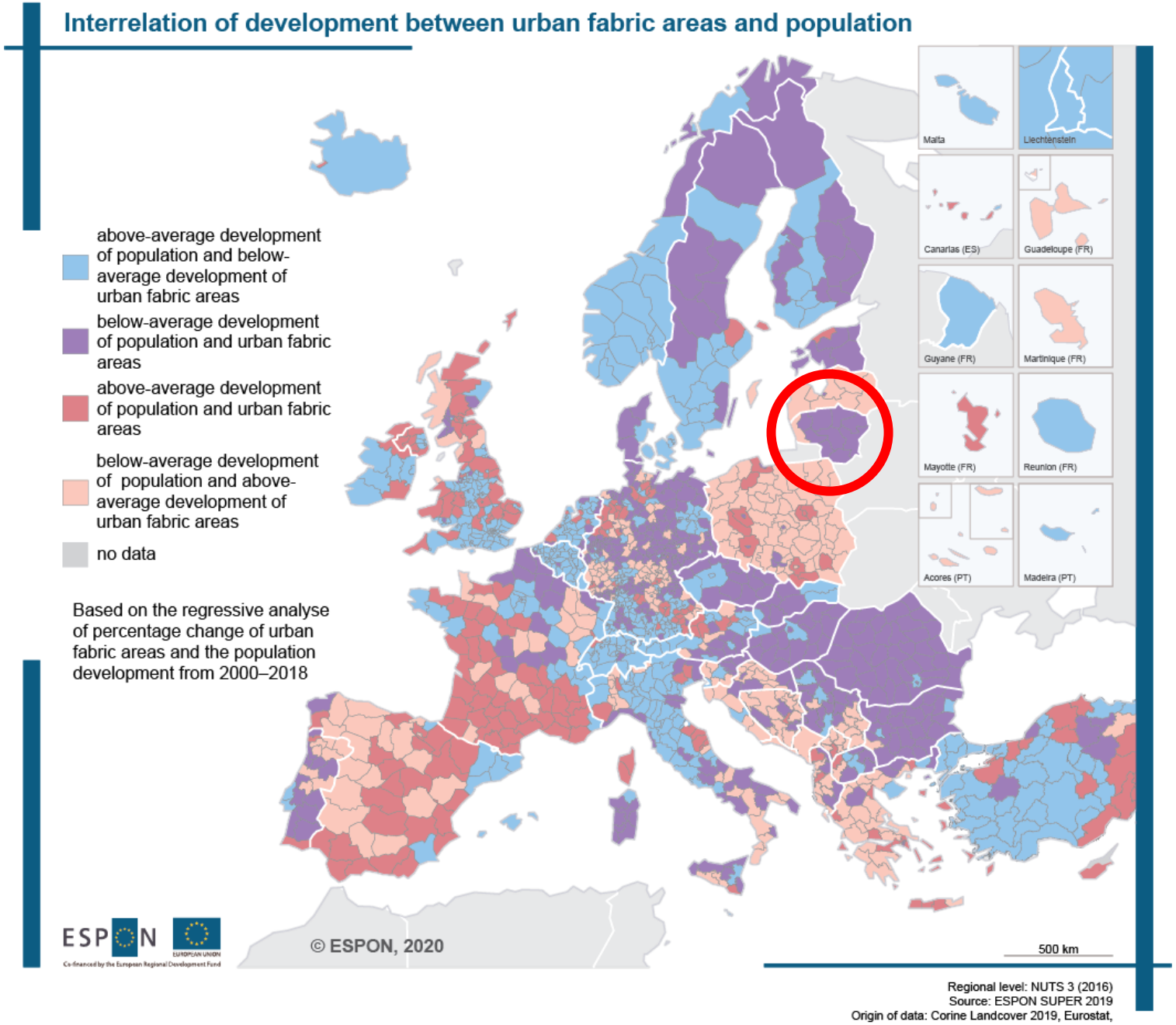
Change from non urban use to:

- Urban fabric
- Urban - Industrial
- Construction sites
- Urban infrastructure
- Urban green

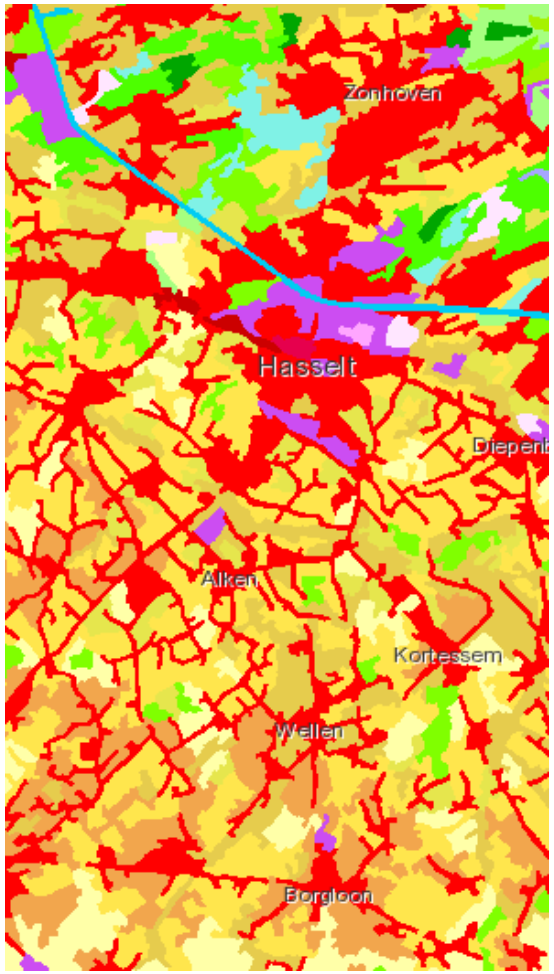
Relative growth

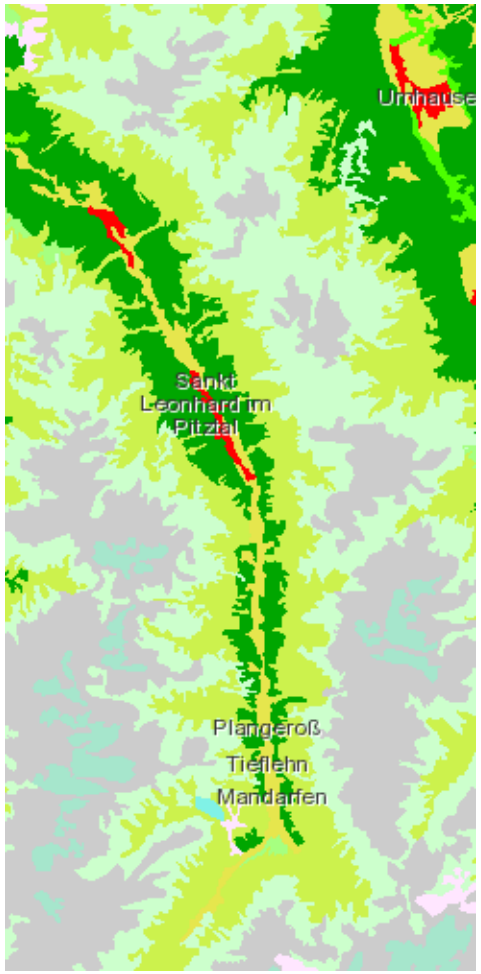
- Light red: urban growth outstrips population growth
- Light blue: relatively compact development vis-à-vis European average

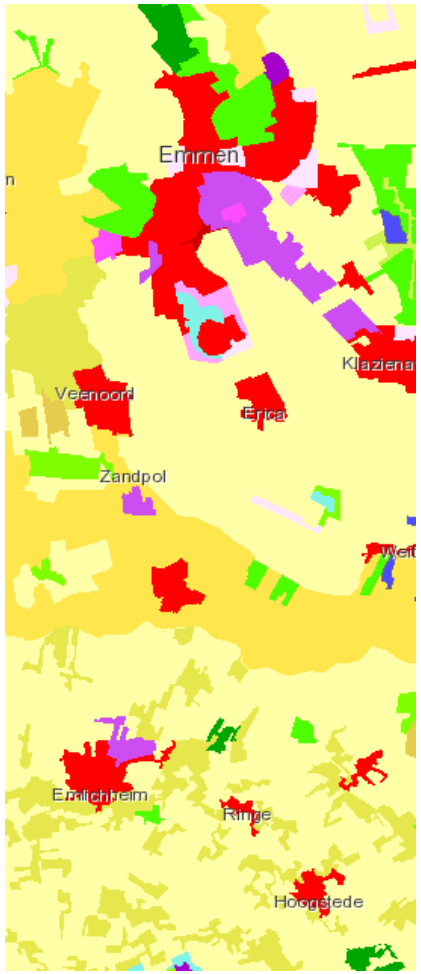


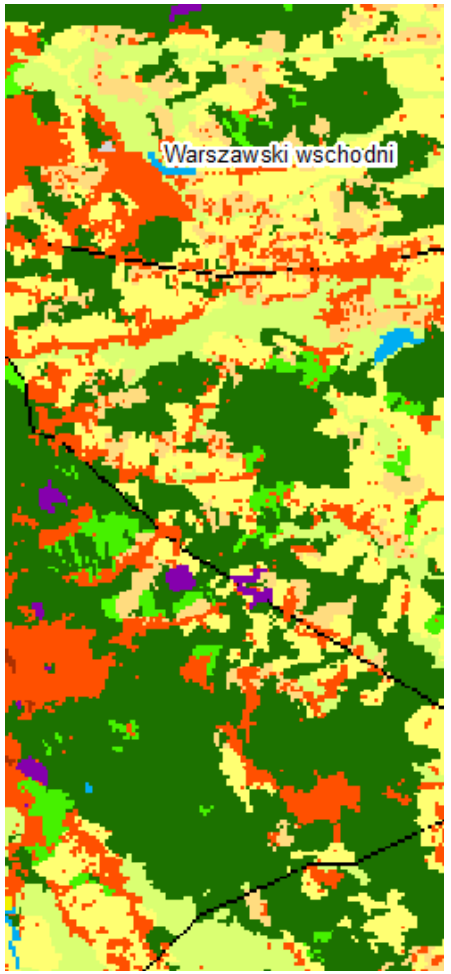


Urban form: easy to see, hard to measure

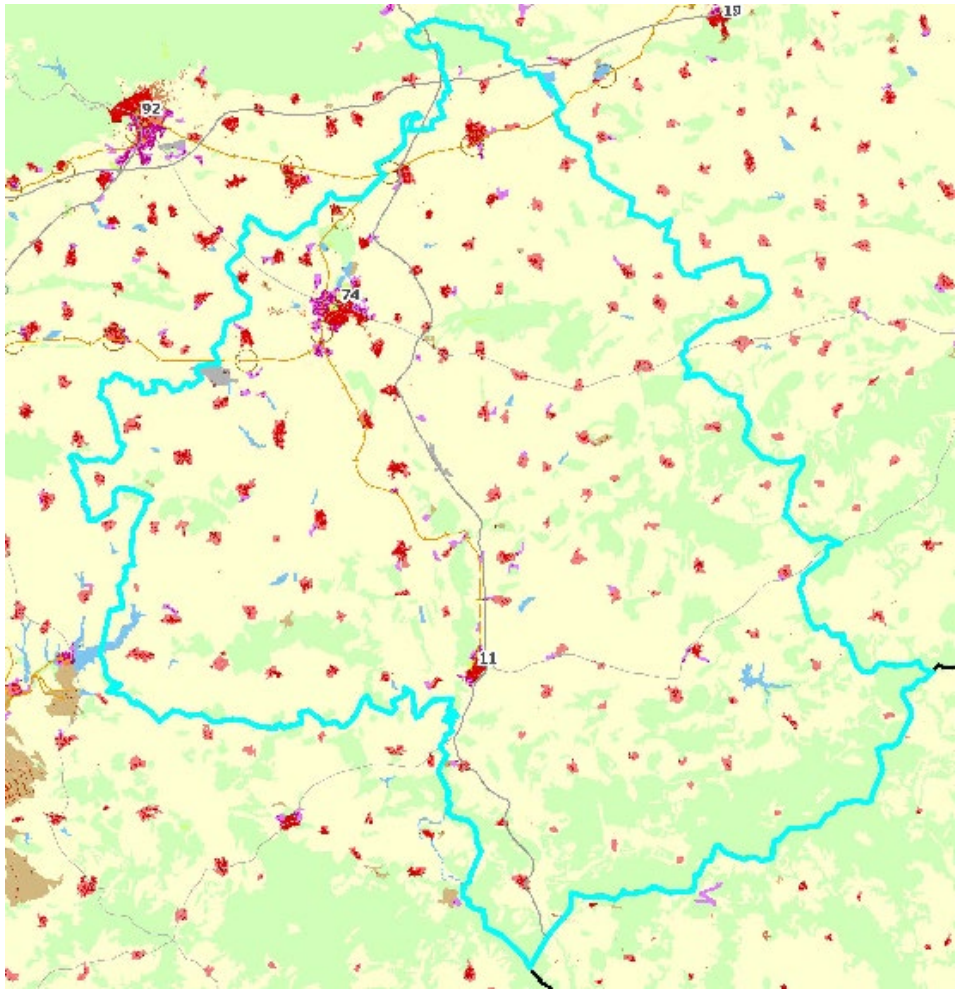


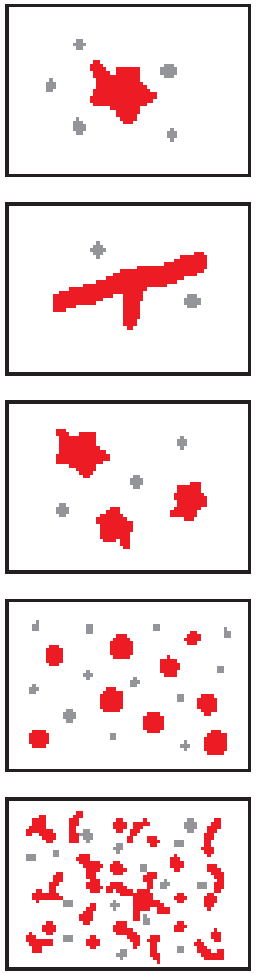


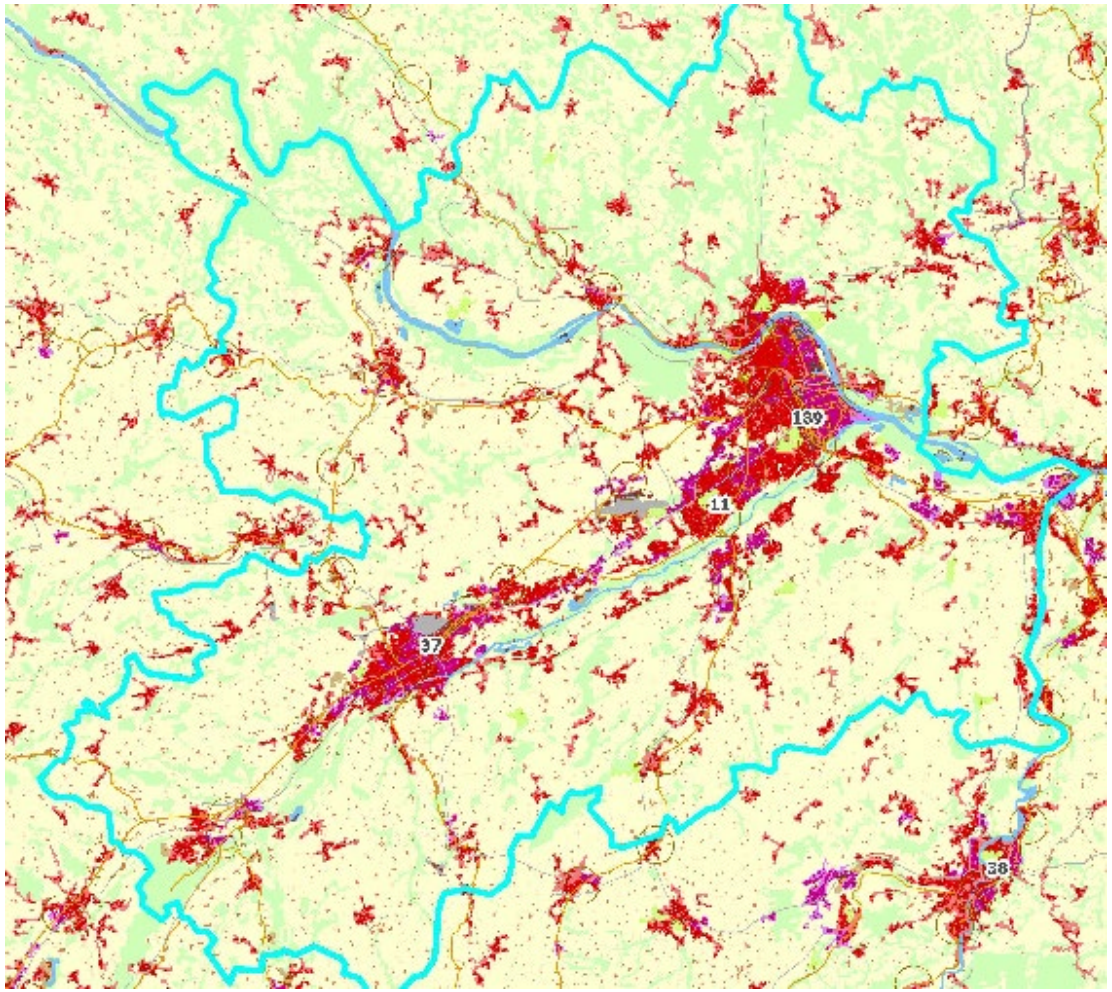




Morphological analysis







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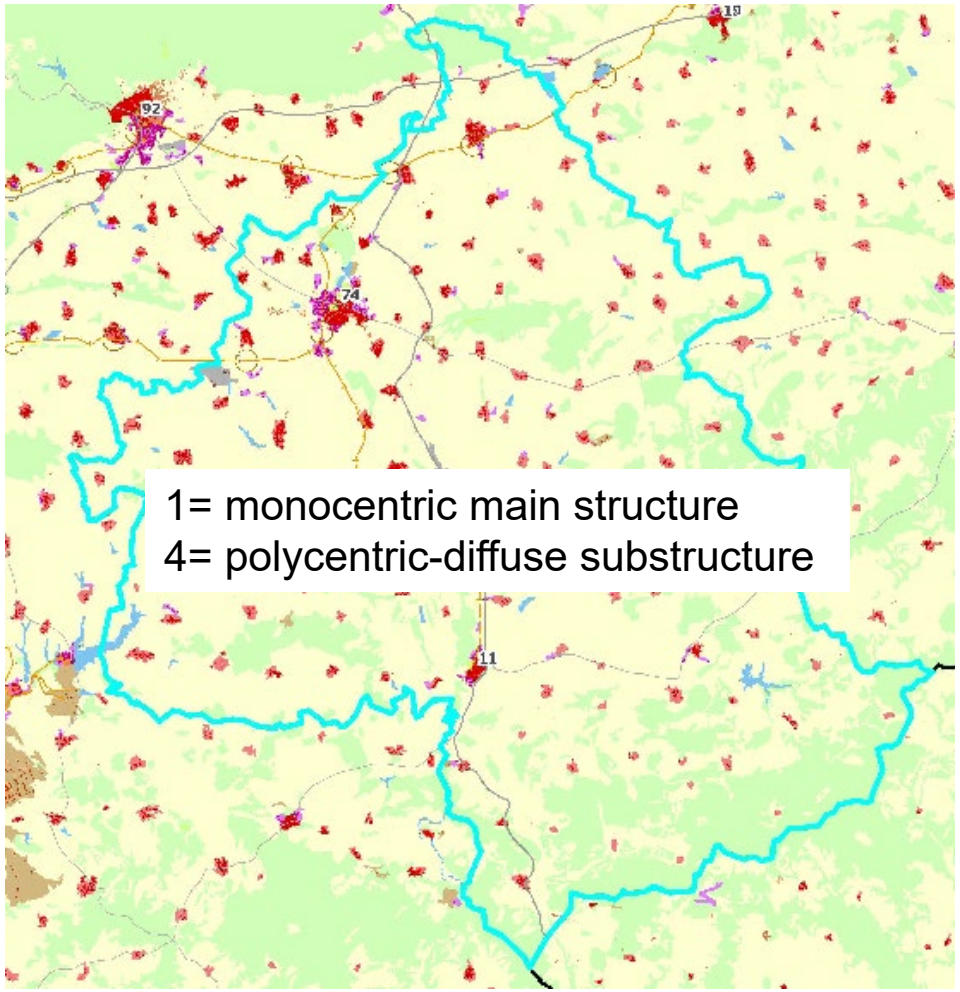
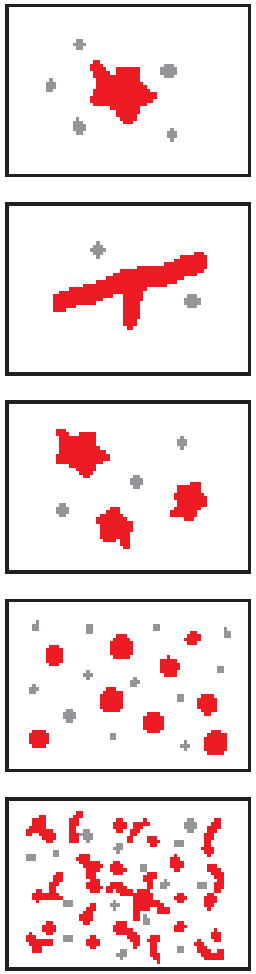
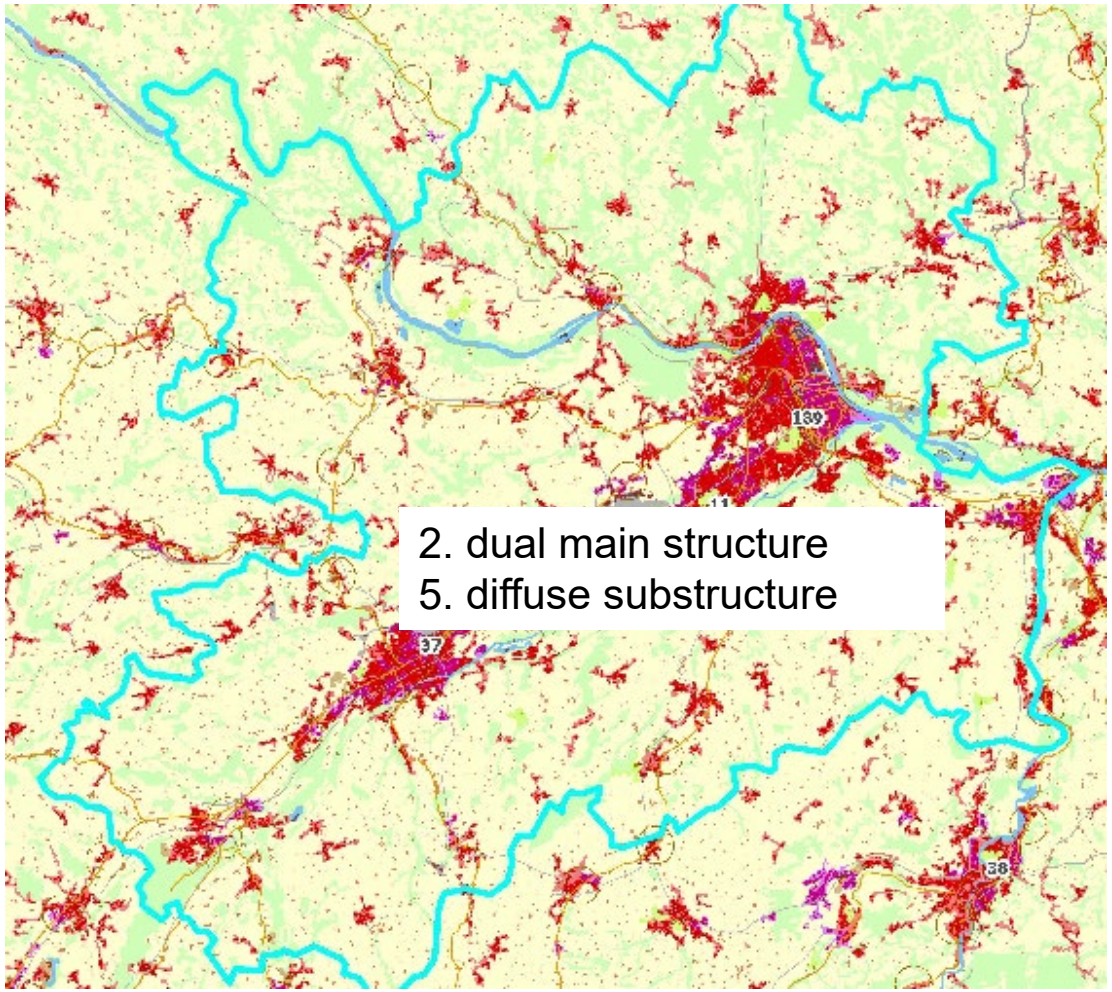
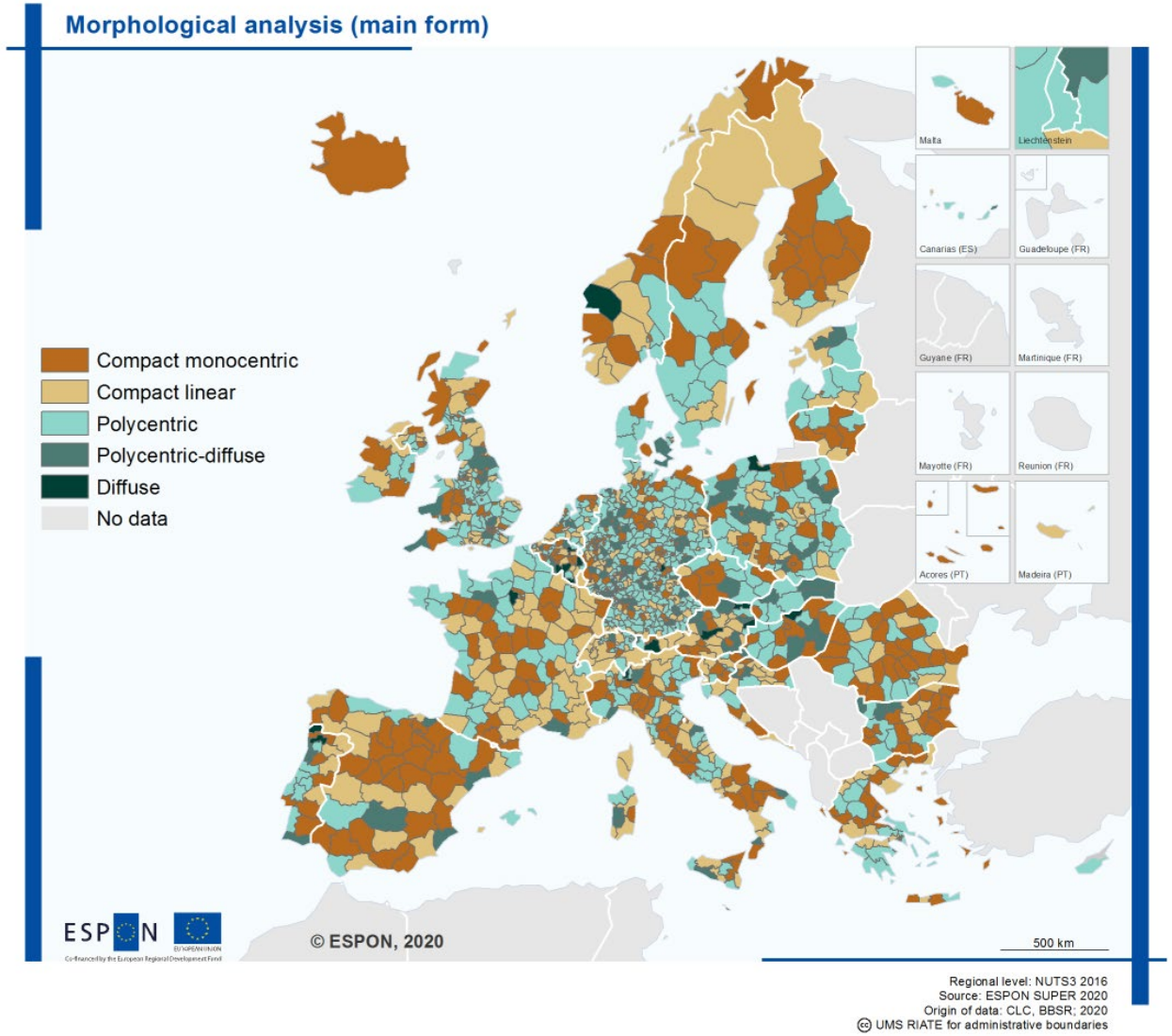
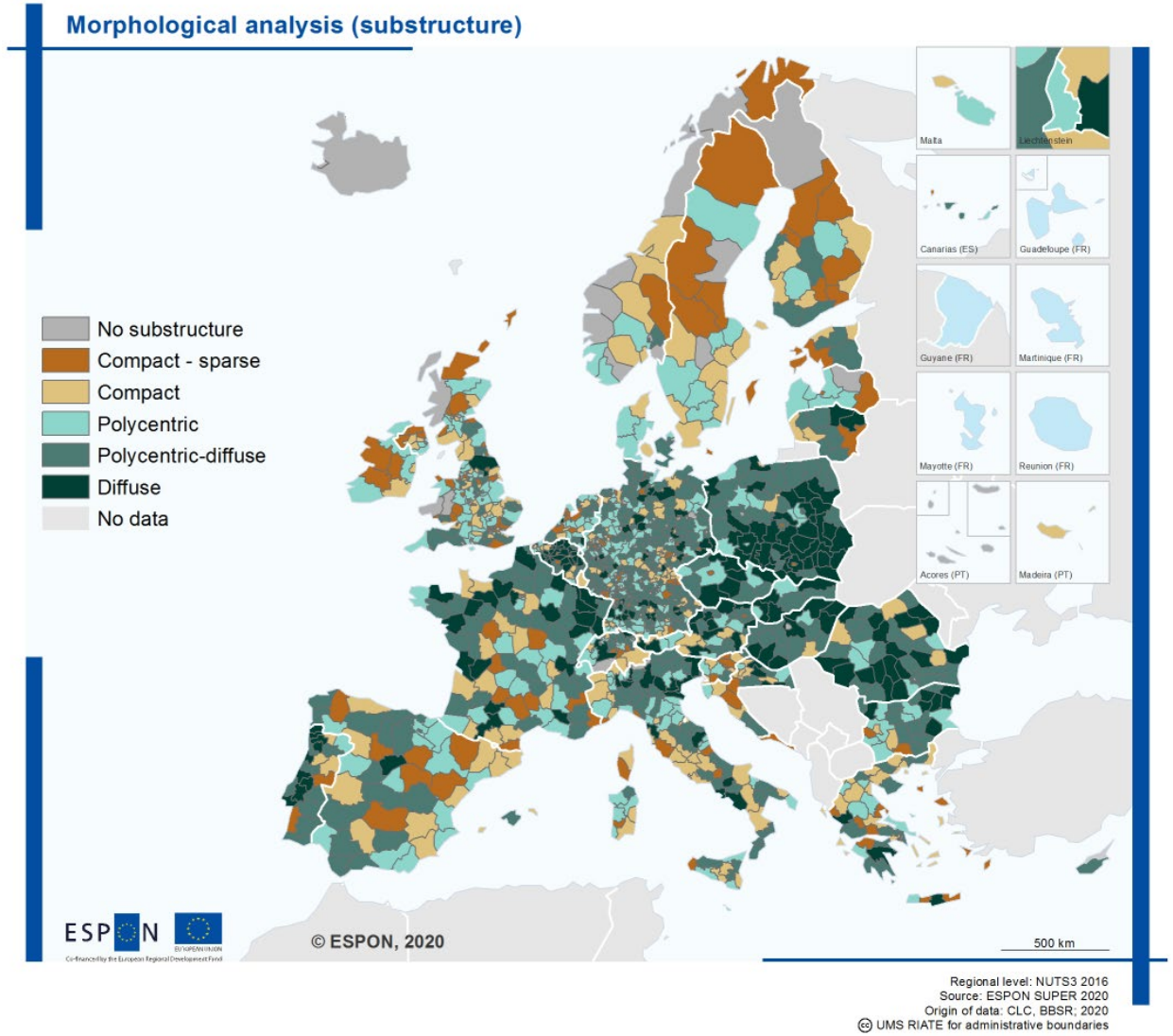




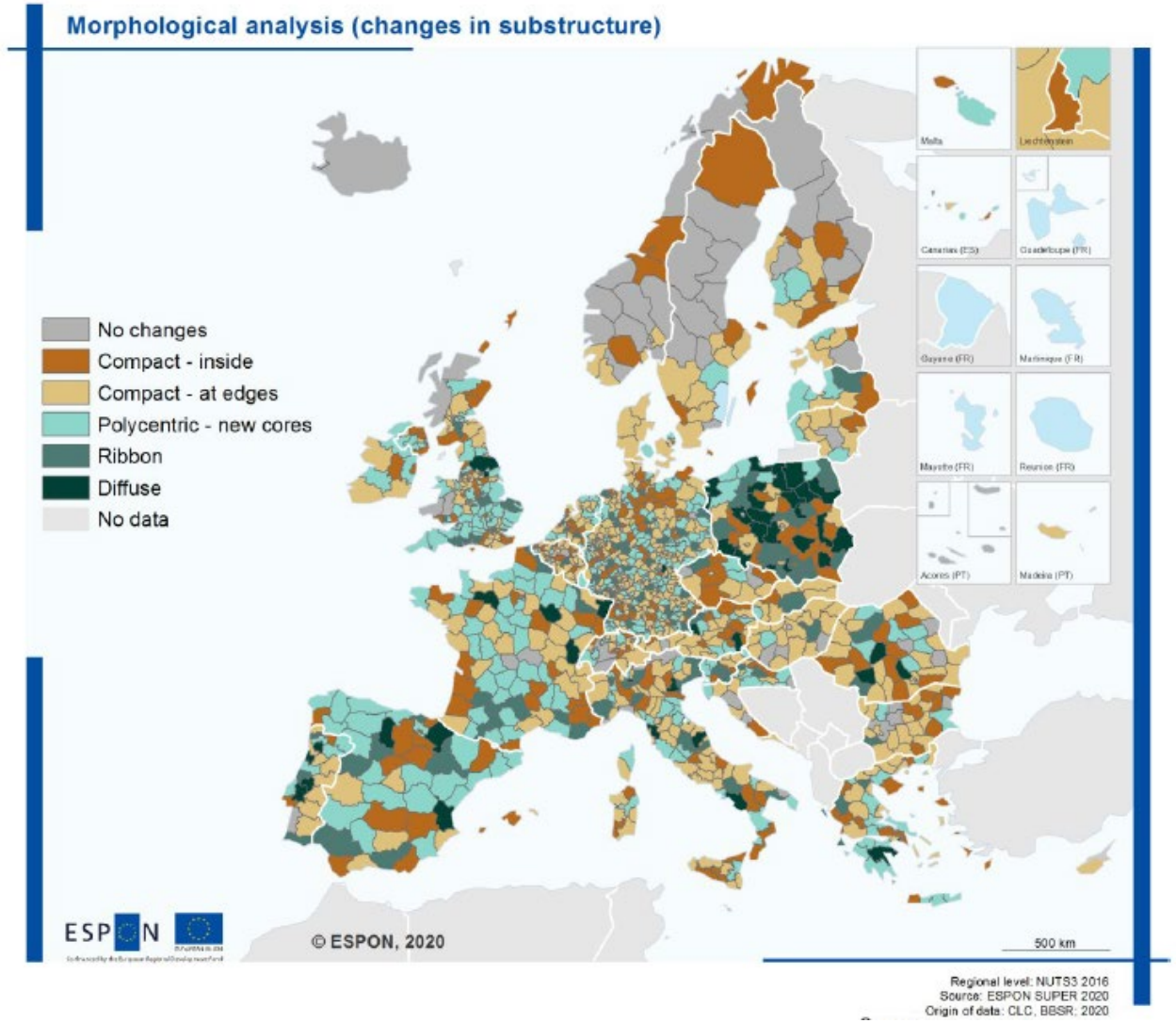


- Polycentric regions most frequent structure in Europe
- Substructure diffuse development around all kinds of main structures





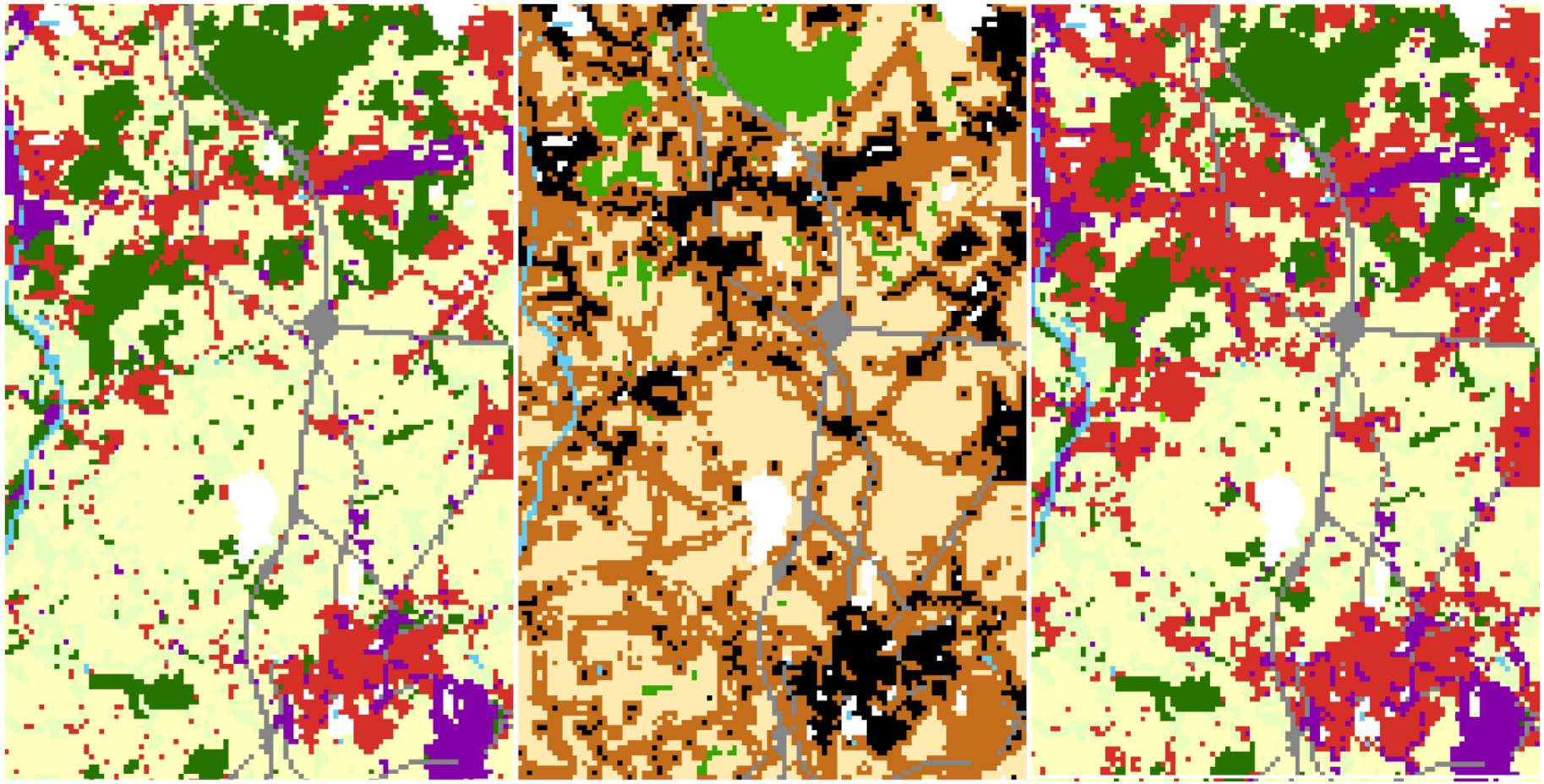
Substructure development



Three modes of urbanisation

- **Compact / containment**
  - High-density compact cities
  - Growth boundaries, infill & brownfield redevelopment
- **Polycentric / clustered**
  - Medium-density, clustered, polycentric urban structure
  - Planned new towns, TOD, some new urbanist designs
- **Diffuse / scattered**
  - Low-density, scattered/discontinuous, car-oriented
  - Organic growth, single-family zoning

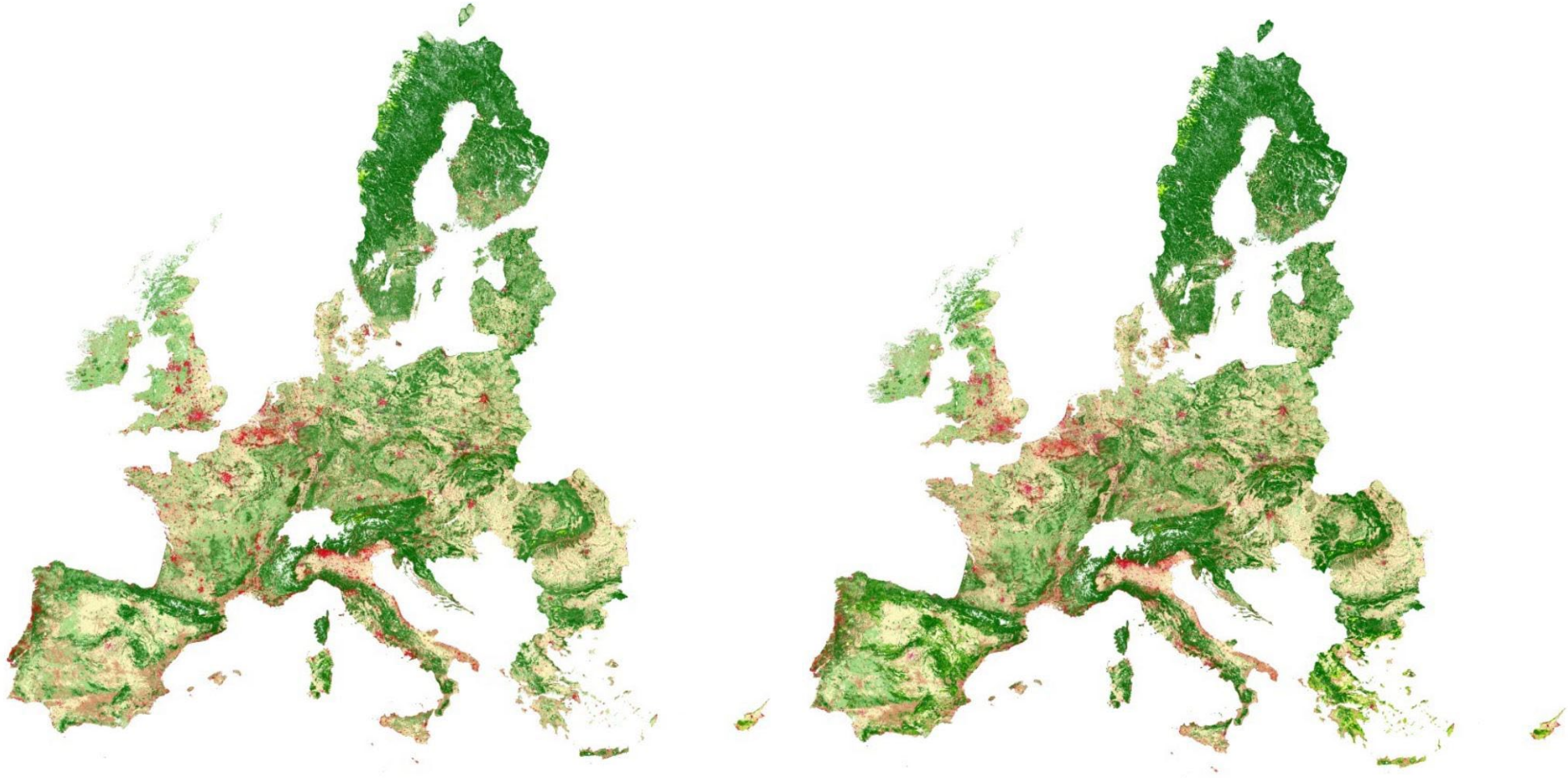
Modelling land-use change



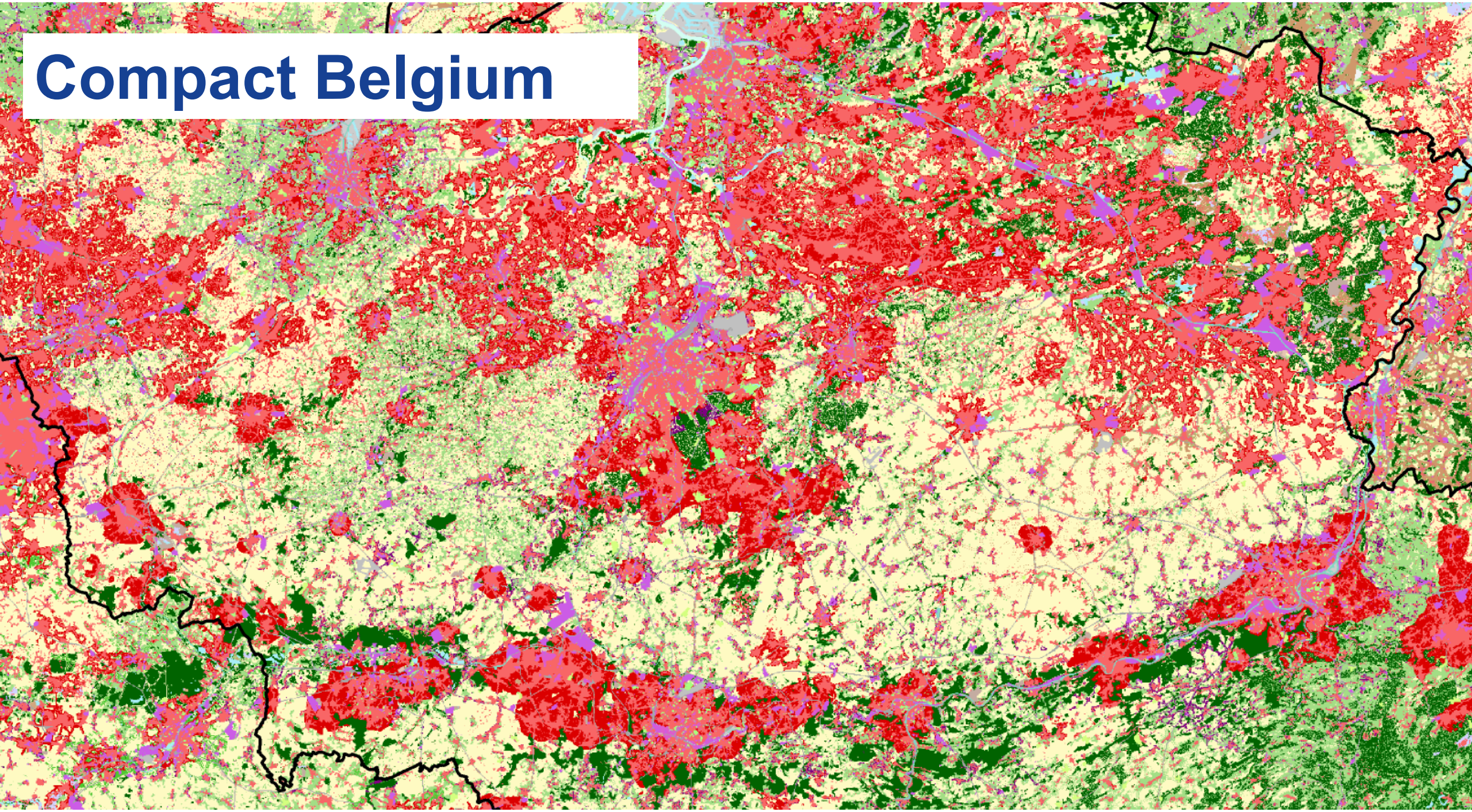
Luisetta works on five year intervals, consecutively changing land use.

It reallocates according to expected demand at Nuts2 level and local suitability (near roads, existing urban area, water)

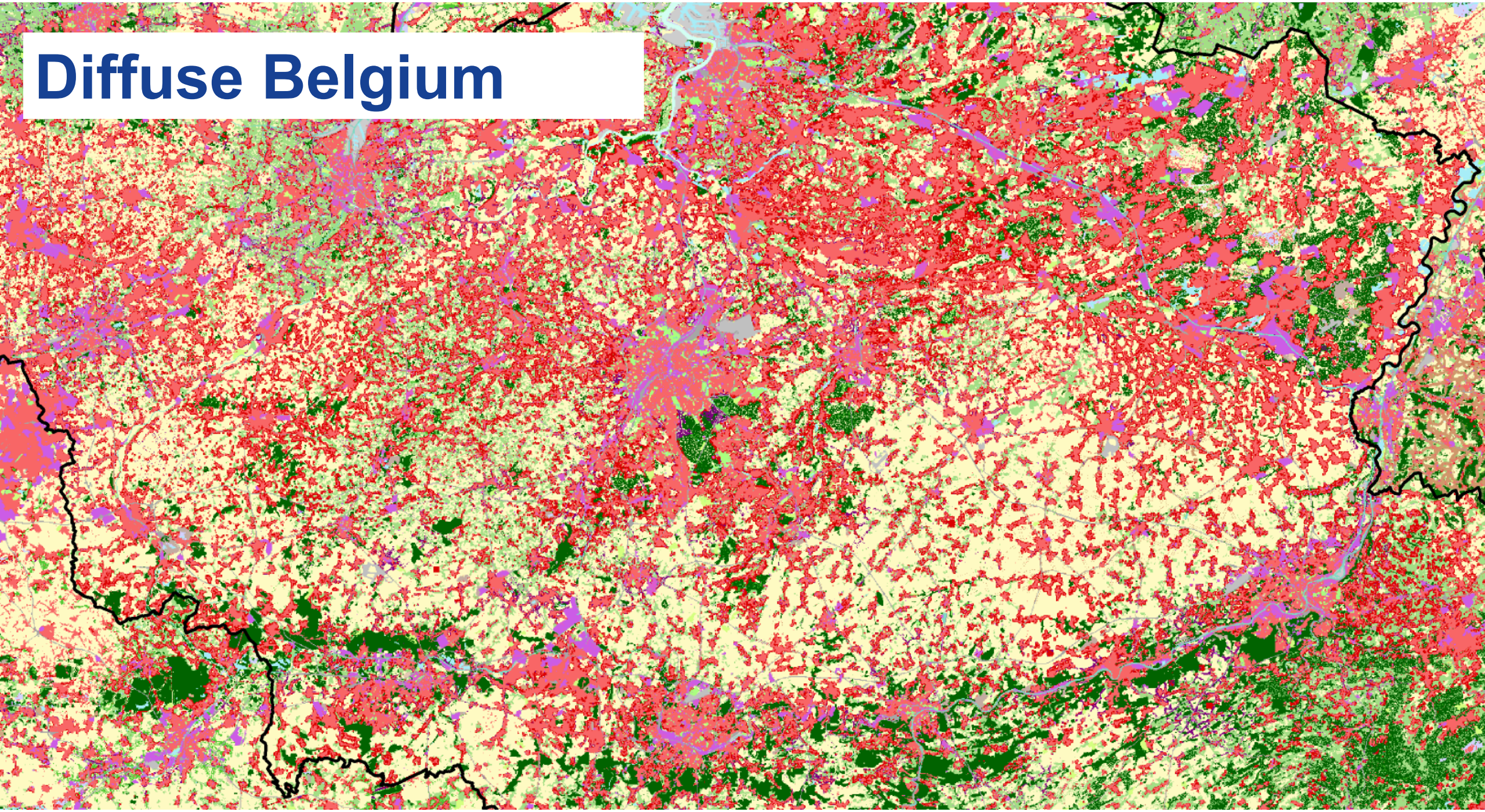
Model results: compact vs diffuse



Compact Belgium



Diffuse Belgium



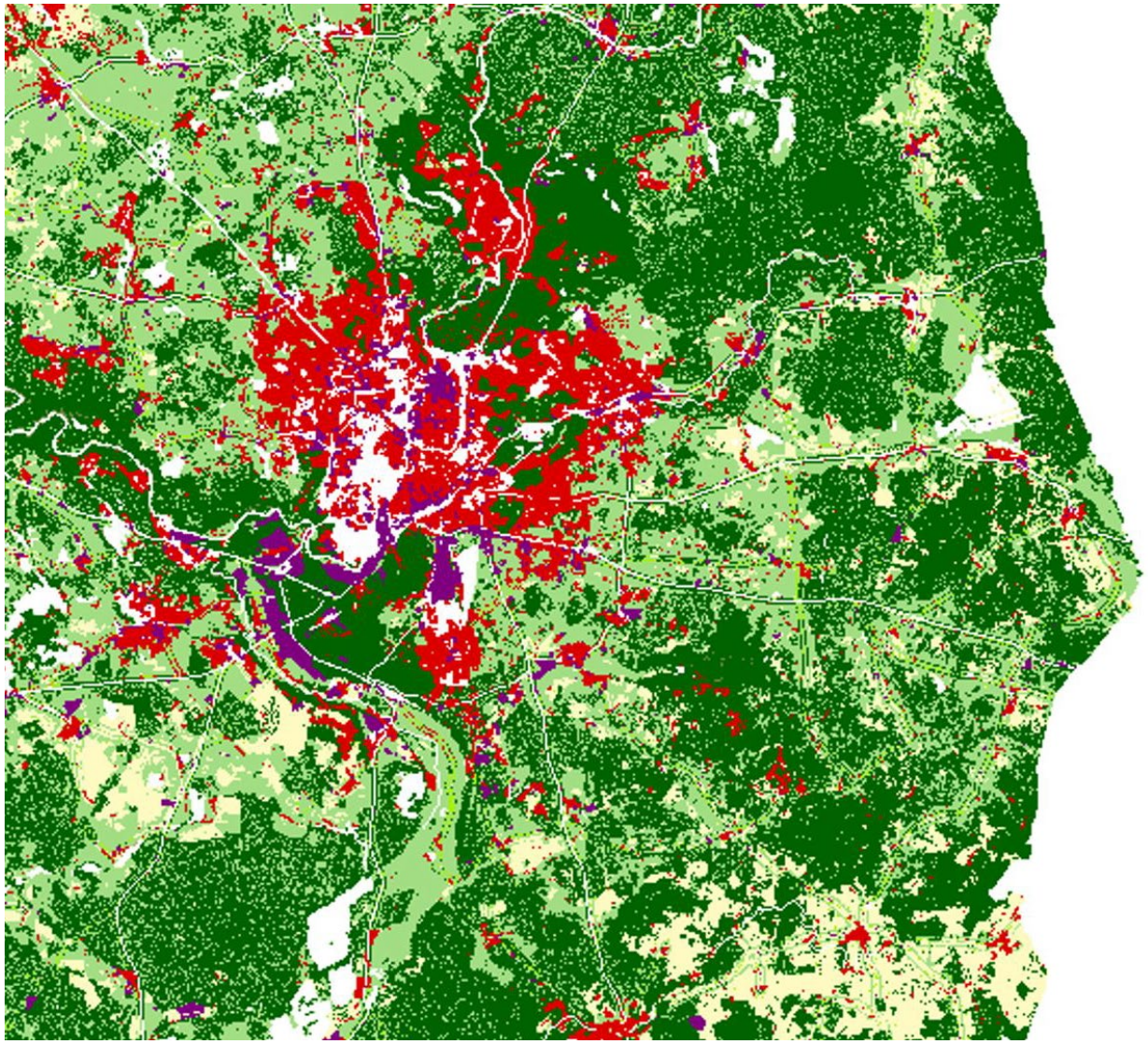
Compact Germany

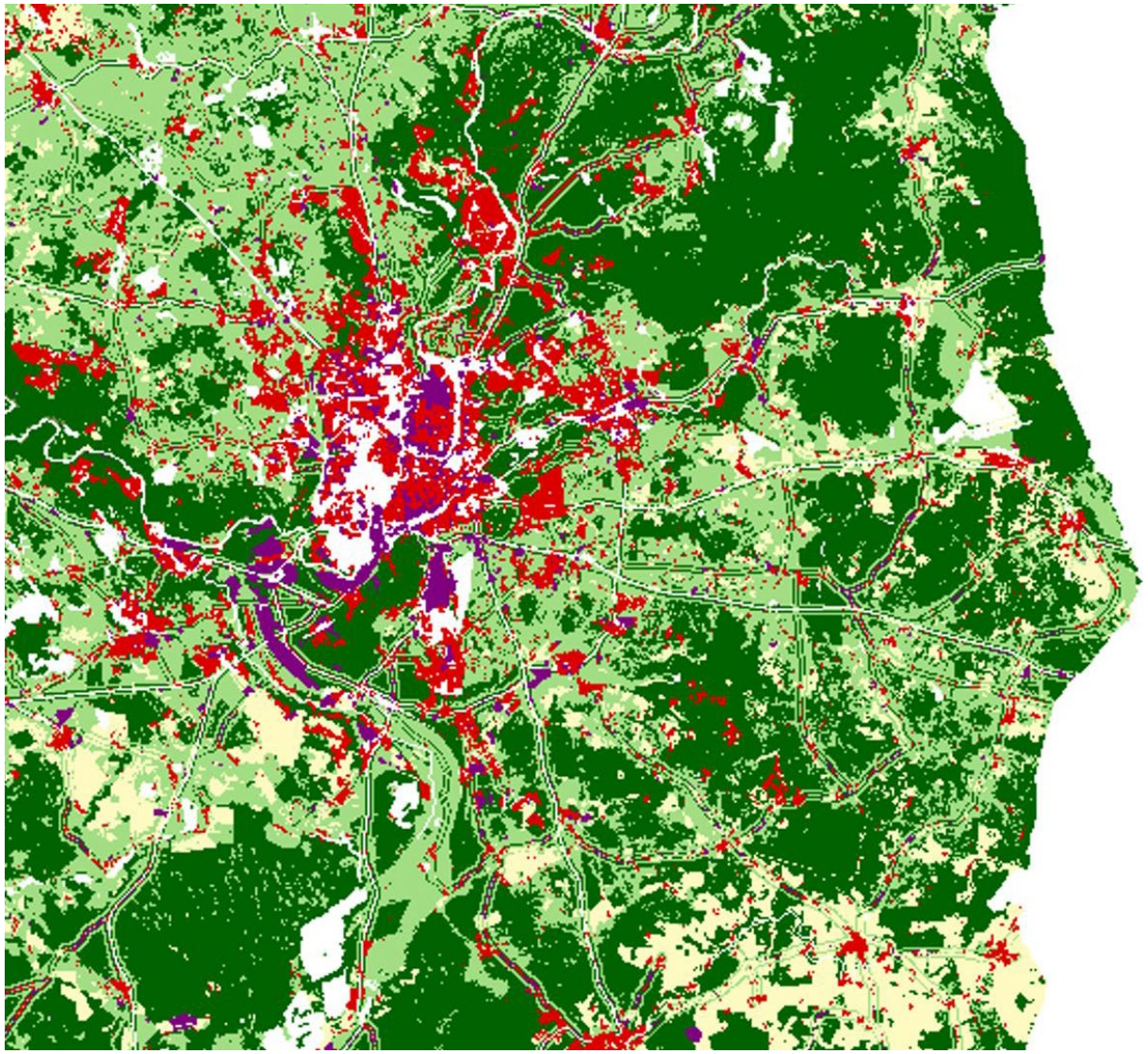
Diffuse Germany

Compact Baltic

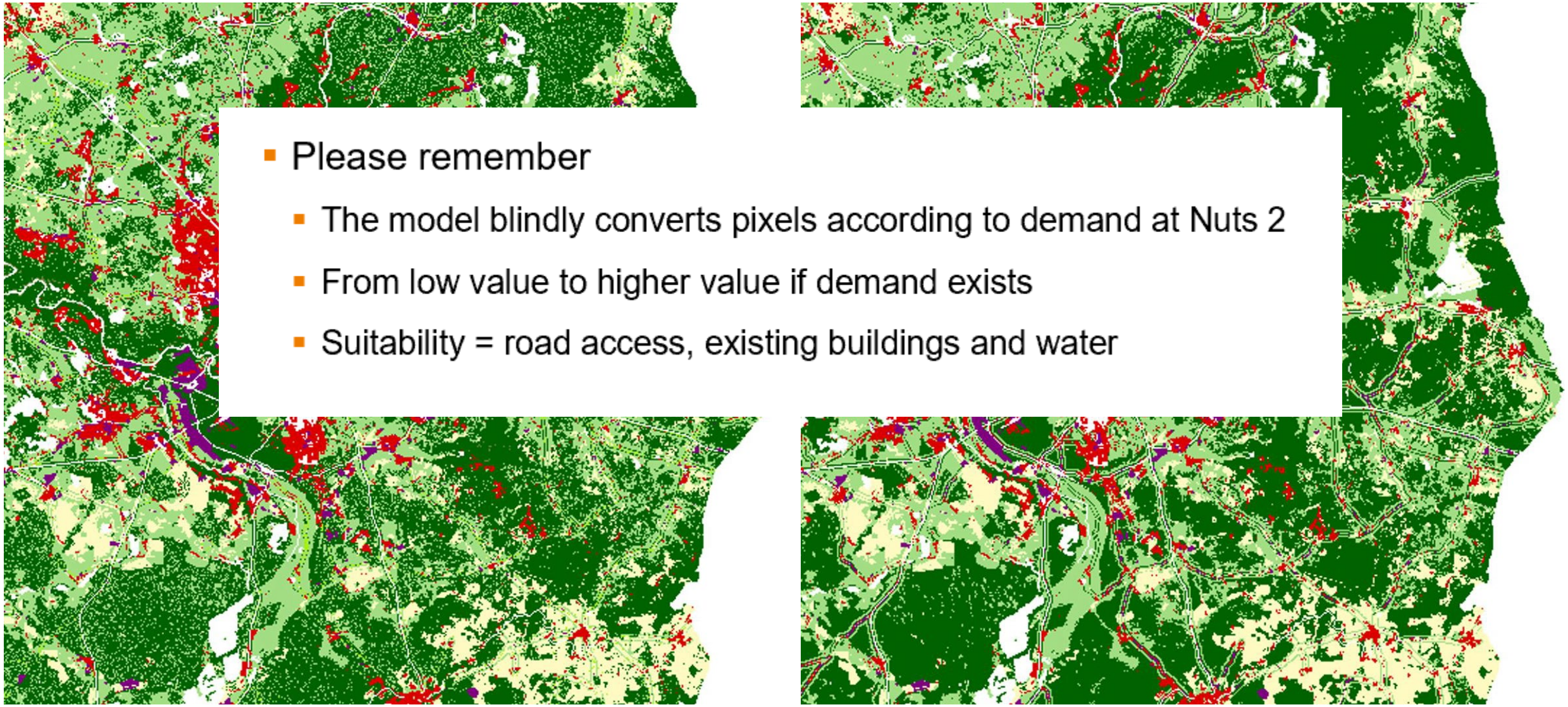
Diffuse Baltic

Compact vs diffuse in Vilnius



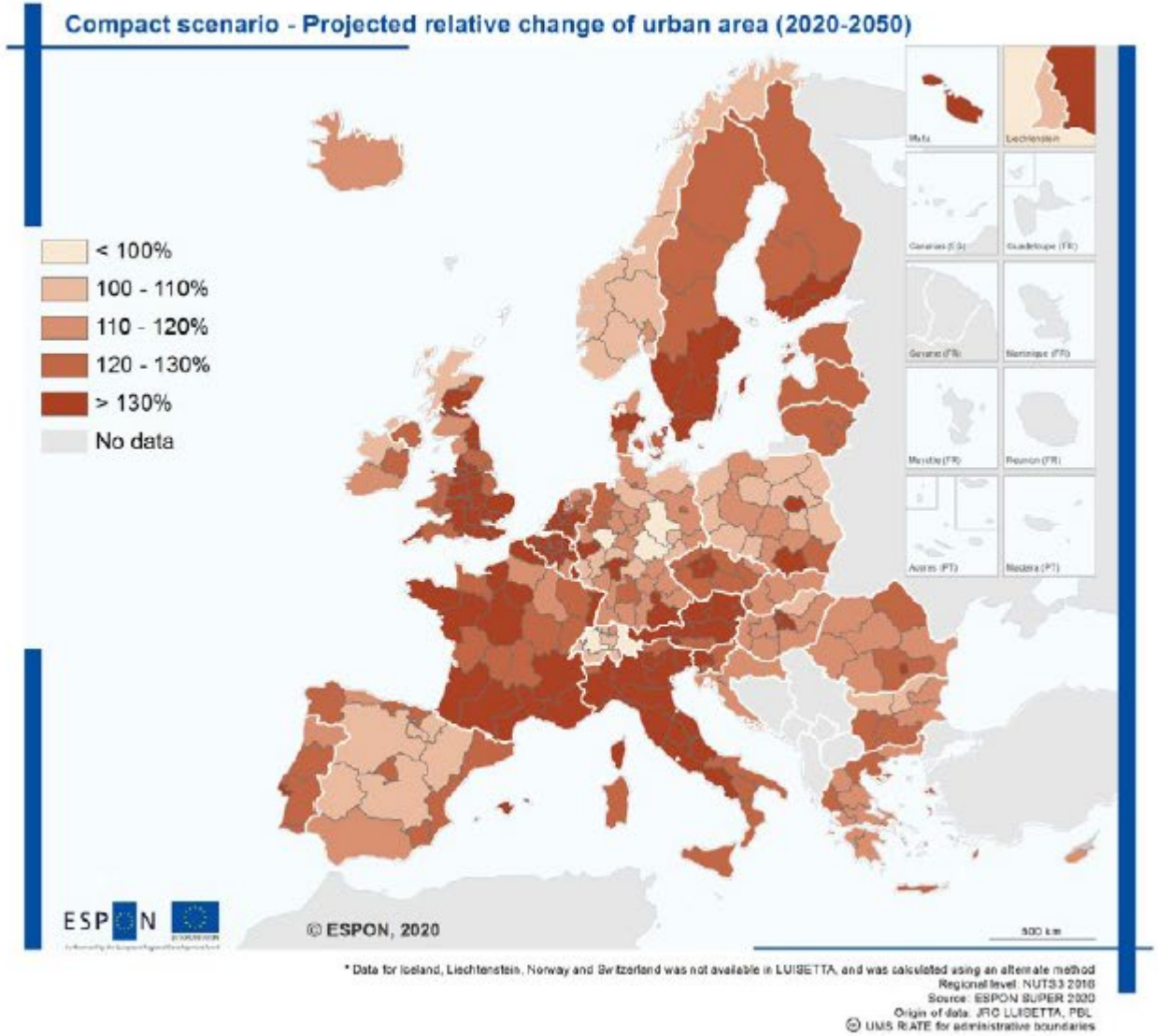


Compact vs diffuse in Vilnius

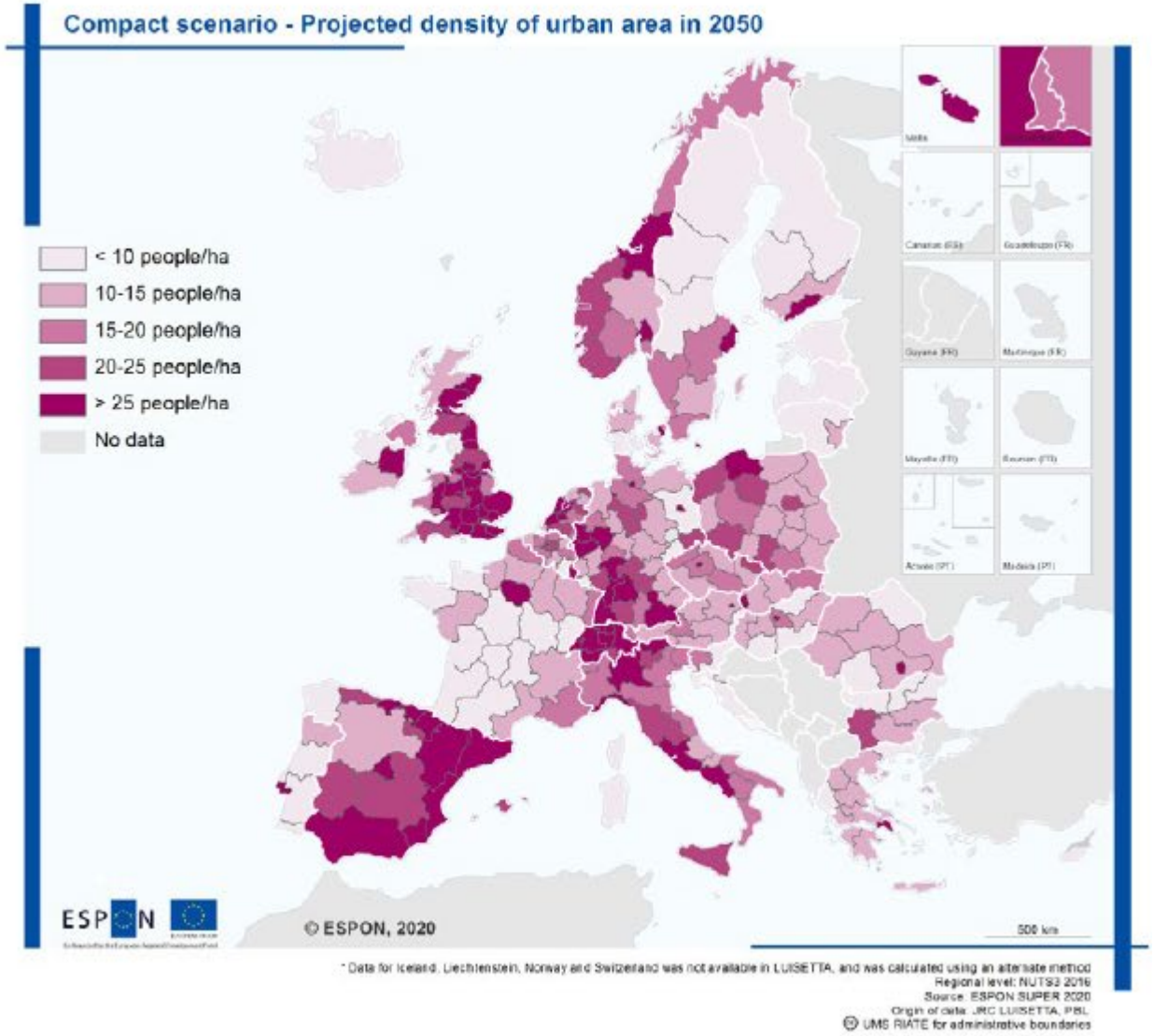


- Please remember
  - The model blindly converts pixels according to demand at Nuts 2
  - From low value to higher value if demand exists
  - Suitability = road access, existing buildings and water

Urban growth



Population density



	Compact	Polycentric	Diffuse
Economic sustainability			
GDP, wealth	+/–*	++	+
Public finance	+ +	+	–
Jobs	+ +	++	+/ –
Accessibility	+/–	++	+/–
Business areas	++	++	+/–
Housing demand / new construction	–	+	+
Transportation costs	+/–	+	– –
Energy consumption	+	+	– –
Ecological sustainability			
Reducing mobility (by car)	+ +	+ +	– –
Reducing pollution, including CO2	+ +	+	– –
Green urban areas	–	+	–/+
Biodiversity	+/–	+/–	––
Land consumption	+	+	– –
Natural hazards – risk and vulnerability	–	+	+/–
Climate change adaptation/mitigation	+/–	+	+/–
Consumption of resources	+/–	+	–
Space for future renewable energy	+/–	+/–	+/–
Space for future water retention	+	+	+
Space for future circular economy	+	+	–
Social sustainability			
Health	+/–	+/–	+/–
Affordable housing	+/–	+/–	+ +
Equity/inclusion	+/–	+	– –
Public and recreational space	+/–	+	+/–
Variety (high–rise, suburban, etc)	+	+	+
Mixed–use areas	+	++	–
Satisfaction with home environment	+/–	+	+

* For the sake of readability, findings are presented in a synthetic way, omitting the references and averaging out the weights for each indicator (+/– usually means conflicting findings between studies).

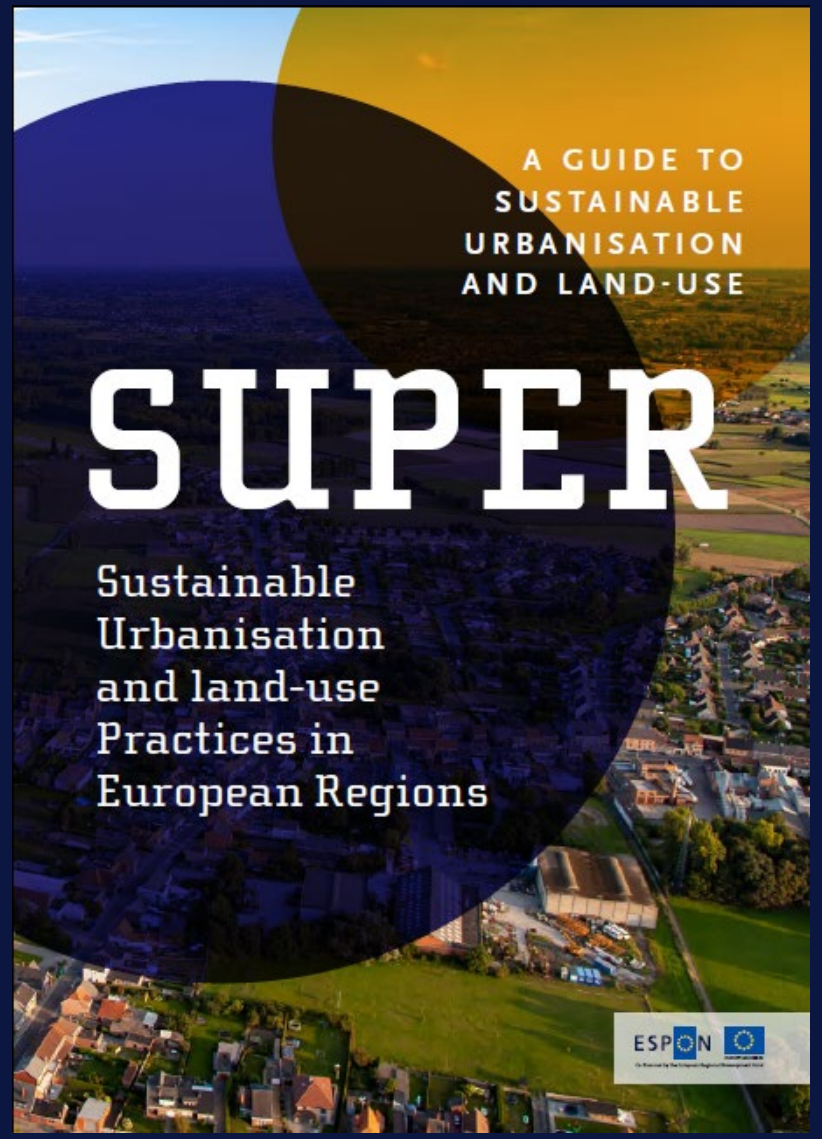
Conclusion: learn from past and future

- **Urban form matters for sustainability**
  - Some regions inherited certain forms, hard to change
  - Still some developments perceptible in 2000-2018 period
  - Scenarios allow for a political discussion on desired developments, now more than ever!

- **Assessing urbanization modes**
  - Which (types of) areas are (not) urbanized in each scenario?
  - How did the urban structure change as a whole?
  - How will that impact car use, public services, future development sites?
  - The various trade-offs imply a *political* decision, not a technical one!

2

Evidence on the impact of interventions on sustainable urbanization and land-use



SUPER GUIDE - A guide to sustainable urbanisation and land-use

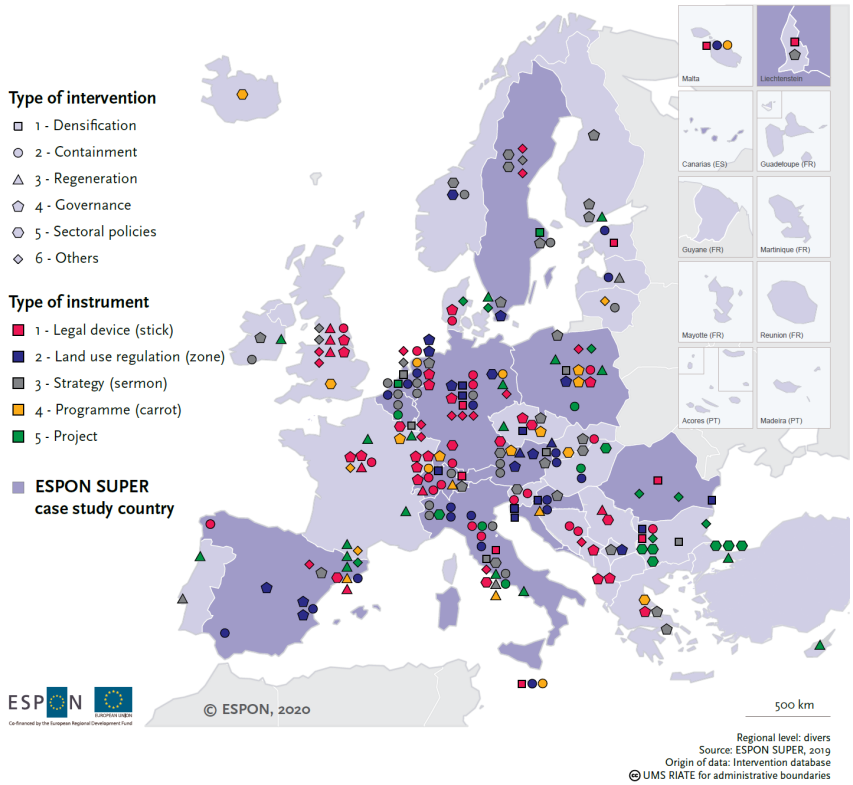
A guide for

Active at the

- Local/regional level
- National level
- EU level

Addressing all dimensions of sustainable urbanisation

- **11** in-depth case studies
- **235** Interventions
- **59** EU policy factsheets



A few examples

Densification

- Malta: allowing building extra floors of buildings, overriding local plan provisions
- Luxemburg: National Infill Programme identifies suitable inner-city lots for building
- City of Reggio Emilia tries to reduce number of areas that had been once zoned for urban uses but remained unbuilt.

Containment

- Andalusia: urbanization caps for medium and large municipalities
- Lower Austria: Infrastructural Cost Calculator helps municipalities assess municipal infrastructural costs and tax revenues for new urbanization.
- Denmark: restrictions on the construction of large shops and shopping centres on greenfield sites outside the largest cities

BOX 8

Territorial Action Plan of the Huerta de Valencia (ES)

Name of the intervention, location and country:
Huerta of Valencia Spatial Plan (Spain)

Territorial level: LAU1; **Year:** 2018

Website link:
http://politicaterritorial.gva.es/es/web/planificacion-territorial-e-infraestructura-verde/pat-horta-de-valencia

See also: ESPON SUPER, Final Report, Annex 3.6_ES. Available at: https://www.espon.eu/super

Overview of Urbanisation – Valencia, Spain

Territorial characteristics of the area:
The Huerta is a fertile agricultural area around the city of Valencia. Over time, highly productive soil has been lost and fragmented by permissive regulatory frameworks and speculative land development.

Intervention goal and main features
The spatial plan is established by the Law of the Huerta to prevent land consumption. This is part of a conservation strategy using a smart specialisation approach based on ecological services. It also involved collaboration as 40 municipalities agreed to enact legally binding land-use regulations.

Main lessons and policy recommendations:

- **Territorial awareness is important.** The burst of the real-estate bubble and a new political cycle facilitated the emergence of **wide public agreement** on the need to protect farmland and natural areas. This enabled **political will** and **leadership**.
- **Expanded understanding of the Green Infrastructure concept.** Planning can maximise its impact by involving public but also private space for common use, and by introducing new links and functional urban-rural connections.
- **Compensation mechanisms as success factor** to mitigate negative impacts of protective dispositions when land owners lose development rights.
- **Develop land according to real demand.** This helps foster **economic alternatives to real-estate development** such as agro-food, tourism, smart specialisation strategies.
- **Economic sustainability is important**. Ensuring sufficient funding and **resources is an important pillar of the strategy**.
- **Implementation matters. Forbid illegal developments** and enable **binding rules to restore pristine conditions**.

European practices in governance: gaining commitment for the strategy.

ES: broadening the base of stakeholders improved support

AT: participatory processes and good communication key

BOX 5

Vision Rheintal (AT)

Name of the intervention, location and country:
Vision Rheintal (Vorarlberg, Austria)

Territorial level:
LAU1; **Year:** 2004 (updated in 2017)

Website link:
http://www.vision-rheintal.at/

See also: ESPON SUPER, Final Report, Annex 3.2_AT. Available at: https://www.espon.eu/super

Overview of Rheintal Region – Austria

Territorial characteristics of the area:
In Vorarlberg, high demographic growth has led to increasing demand for homes and businesses, higher prices, unaffordable housing, scattered low-density urbanisation patterns and increased traffic.

Intervention goal and main features
Over time, 29 municipalities have coalesced into a single urban area. The spatial strategy *Vision Rheintal* was developed and implemented by the federal government through a highly participatory process between stakeholders and all political-administrative levels. It comprises the reference framework for municipal plans and other spatial plans.

Main lessons and policy recommendations:

- **Clear-cut objectives** focusing on concrete themes which are **useful** for the **long term** were positive factors to agree sustainable spatial visions.
- Similarly, **long experience** and **continued incremental actions** to face a **common well-defined threat** have been crucial to achieve successful results in this concern.
- **Focus on implementation** and the way in which **each stakeholder can contribute** to achieve the goal is another important factor allowing to agree sustainable spatial visions
- Appropriate, timely and **understandable information are key ingredients for success as well as** transparent and fair **participation**.
- **Commitment and political will**, with the support of all planning and political levels and **civil society** is a strong combination for successful decisions on sustainable land use, for which incremental actions in mid-term perspective help.
- **Good relations** between administrations and participants facilitates **ownership** and **empowerment.** Raising awareness about the benefit of intermunicipal **cooperation** (e.g. financial compensation) can contribute to this.
- **Demonstration effect helps to generalise sustainable land use practices:** good results in strategic planning **(soft)** comprised the basis for modifications in land-use regulations **(hard)**, **transforming the planning** and **territorial culture**.

BOX 9

German Land Take Reduction Target (DE)

Name of the intervention, location and country:
Less than 30 ha/day for settlements and transports (Germany)

Territorial level: NUTS0; **Year:** 2002

Website link:
https://www.bundesregierung.de/breg-en/issues/sustainability/germany-s-national-sustainable-development-strategy-354566

See also: ESPON SUPER, Final Report, Annex 3.5_DE. Available at: https://www.espon.eu/super

Overview on Düsseldorf Urban Structure – Germany

Territorial characteristics of the area:
The target to reduce land take to less than 30 ha per day has been implemented throughout Germany. The objective is taken up at various administrative levels: Federal level, State (Länder) and local authorities.

Intervention goal and main features
The target to reduce land take to less than 30 ha per day of land for settlements and transport infrastructure by 2030 is part of the German sustainability strategy from 2002, as an indicator to measure and evaluate land take. The scope is "inward looking"; from national target down to local level.

Main lessons and policy recommendations:
- **If zoned as building land**, soil sealing can damage natural functions, possibility resulting in un**sustainable land use**. **Regeneration, densification** and **green space maintenance** can help, provided a legal framework supports this.
- **If real demand exists,** limiting development on new land can make real-estate prices increase.
- **Economic and political context matters. A clear distinction** should be made **between land prices motivated by a real need versus speculation** in order to provide appropriate measures for new development (prohibitions, compensation mechanisms, development right trading with land certificates, sharing/distributed taxes).
- **Radical changes in planning practice** do **not work** in this case, as the traditional countercurrent binding principle that characterises the German spatial planning system (implying coherence and coordination) results weakened.
- Lack of **coordination and leadership** can result in **contradictory laws,** impeding sustainability.
- **The main focus should be on implementation.** Without booking tangible results, political enthusiasm decreases over time (**planning fatigue**).

European practices in regulation: setting clear standards.

DE: clear target, but the implementation process is indirect (weak commitment)

CH: clear rules and enforcement; strong political backing (referendum)

BOX 7

Revision of the spatial planning law in Canton Aargau (CH)

Name of the intervention, location and country:
Revision of the Spatial Planning Law, Canton of Aargau (Switzerland)

Territorial level: NUTS3; **Year:** 2014

Website Link: https://www.uvek.admin.ch/uvek/de/home/uvek/abstimmungen/abstimmung-raumplanungsgesetz.html
https://www.ag.ch/de/bvu/raumentwicklung/raumentwicklung.jsp

See also: ESPON SUPER, Final Report, Annex 3.4_CH. Available at: https://www.espon.eu/super

Revision of the spatial planning law in Switzerland (focus on Canton Aargau)
Source: Schweizer Luftwaffe (2011)

Territorial characteristics of the area:
Since the 1960s, the living space per person in Switzerland has doubled to around 50 m². Before the intervention, there were calls for a coordinated federal response to limit urbanisation.

Intervention goal and main features:
The Case concerns the revision of the Swiss Spatial Planning Law and the implications of this for the Canton of Aargau. Its aim is to control urbanisation by promoting compact settlement development. It mandates that building zones that are too large should be reduced in size and that existing reserves should be used more efficiently. In a referendum on 3 March 2013, the revision was approved with 63% of the votes.

Main lessons and policy recommendations:
- **The revision elaborated the original law by providing specific measures and tools to enforce sustainable land use at the regional level.** It contributed to a better regional-federal coordination in spatial planning and clarified procedures and requirements.
- **An important success factor was a willingness to compromise** with respect to a more extreme landscape protection initiative. In the referendum, the public voted clearly in favour of the revision and the outcome was widely accepted.
- **Clear communication of pro/con arguments is important:** transparent information activities allowed stakeholders to become aware of the gravity of the situation and the need for intervention.
- **A new fiscal compensation tool helps regional authorities promote sustainable land use:** if de-zoning involves expropriation, it is now mandatory to demand value-added tax from owners of newly designated buildable land in order to compensate those whose land has been deprived of development rights.
- **A long-term perspective helps to achieve positive outcomes:** this helps raise awareness in the spatial planning community as well as among the public.
- **Spatial Planning regulations can help fight land speculation:** where it is foreseeable that the population will grow and companies will settle, new building zones can be designated. Conversely, cantons where existing zoned building land exceeds future demand will have to implement de-zoning activities.

INFOGRAPHIC 7

Characteristics of successful interventions

Densification

Private actors
The inclusion and involvement of private actors.

Stakeholders
An increased coordination and cooperation between the interested stakeholders seems to improve the effectiveness of densification interventions.

Binding instruments
The adoption of legally binding instruments often improves the success of such interventions.

Containment

Knowledge transfer
The engagement with a heterogeneous group of experts (transfer of 'expert knowledge').

Beyond boundaries
Cooperation and coordination that goes beyond municipal boundaries seems to improve the effectiveness of containment interventions.

Integrated approach
The adoption of a holistic and integrated approach also seems to improve the successfulness of these interventions.

Regeneration

Private actors
The inclusion and involvement of private actors.

Integrated approach
Successful interventions that support regeneration are those that promote a long-term sustainable development perspective and integrated approach.

Stakeholders
Cooperation and coordination between the interested stakeholders also seems to improve the effectiveness of these types of interventions.

Sectoral policies

Governance

Long-term vision
The adoption of a long-term vision (e.g. up-zoning and measures for infill development).

Multidimensionality
Addressing environmental, economic and social issues at the same time.

Political will
The presence of and support from a strong political will.

Long-term perspective
The adoption of a long-term perspective (e.g. green belts, urban growth boundaries).

Multidimensionality
Addressing environmental, economic and social issues at the same time.

Limitation of market mechanisms
The limitation of market mechanisms through the adoption of policies helps the promotion of a more rational land use.

Political will
The presence of and support from a strong political will.

Multidimensionality
Addressing environmental, economic and social issues at the same time.

Long-term vision
The adoption of a long-term vision (e.g. enhance the economic, environmental and social quality of the area and of the local community).

Political will
The presence of and support from a strong political will.

A scarce multilevel coordination leads to ineffective outcomes.

If the interventions are not implemented correctly, they might lead to a discrepancy between the desired objectives and the actual outcomes...

...this might also be due to a lack of political will, technical capability and scarcity of economic resources.

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Source: PBL/ESPON SUPER

Toolbox of instruments for sustainable urbanisation

Success factors:
- combining long-term strategy objectives with short-term needs and priorities;
- promoting innovative solutions in reducing both land use and sealing share per capita.
- Incorporation of economic priorities, environmental needs and social aspects.

Success factors:
- support of strong political will and coordination of interventions;
- support of economic incentives, norms and monitoring measures;
- national long-term targets need to be linked to the local geographical, social and economic context.

Success factors:
- properly designed to avoid or l
and trade-offs;
- focused on few well defined sp
- activated as instruments for su
private initiative to achieve stra

Success factors:
- objectives, mechanisms of implementation and instruments activated are coherent;
- laws have clear objectives (limit land consumption, protect valuable natural areas, compensations measures etc.);
- are normatively strict and binding.

Success factors:
- support of strong political will;
- effective multilevel cooperation process: each regional and local authority is expected to follow the national guidelines;
- technical capability and financial incentives.
- effective horizontal cooperation and coordination

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Conclusion: interventions matter

- **Development practices can be influenced**
  - Found in intervention analysis and interviewed stakeholders in case studies
  - Scope for learning: Europe a gigantic laboratory of best/worst practices
  - No magic bullet: no significant correlation ‘success’ with intervention attributes
  - General principles: collaboration, coordination, long-term perspective

- **Crafting interventions**
  - Use European examples (e.g. SUPER Guide) as an inspiration, not a template
  - Embed interventions in local context and garner commitment
  - Strategies/visions help link long-term objectives to short-term measures

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// Thank you

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