



Brussels
31 January 2020

ENVE
Commission

European Committee of the Regions

Territorial Impact Assessment

Biodiversity

Disclaimer

This report was produced by the European Committee of the Regions secretariat to assist the rapporteur, Roby Biwer (LU/PES), and the ENVE commission in preparing the CoR opinion on [*Bio-diverse cities and regions beyond 2020 at the UN CBD COP 15 and in the next EU strategy*](#). The report will be shared with the European Commission and the European Parliament.

The findings of the report are not binding on the European Committee of the Regions and will not prejudice the final content of its opinions. The report is for information purposes only.

Supported by



This territorial impact assessment report is the outcome of an expert workshop organised by the European Committee of the Regions and ESPON EGTC on 31 January 2020 in Brussels.

The ESPON TIA (Territorial Impact Assessment) Tool is designed to support quantitative assessment of potential territorial impacts in accordance with the Better Regulation guidelines. It is an interactive web application that can be used to support policy-makers and practitioners in identifying potential territorial impacts of new EU legislation, policies and directives (LPDs).

This report documents the findings of a TIA expert workshop on implementation of the post-2020 biodiversity framework in the EU. It serves information purposes only. The report and the maps present the views and experiences of the workshop participants. It is intended as a decision support tool only and does not necessarily reflect the opinions of the members of the ESPON 2020 Monitoring Committee.

Authors

Igor Caldeira (CoR)

Erich Dallhammer, Bernd Schuh, Chien-Hui Hsiung: Österreichisches Institut für Raumplanung
(Austrian Institute for Regional Studies and Spatial Planning) GmbH (ÖIR)

Acknowledgements

Zintis Hermansons (ESPON EGTC)


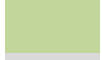



Experts taking part in the TIA workshop

| | |
|------------------------|---|
| Roby Biver | Rapporteur |
| Ainhize Butrón | Natural Heritage, Basque Country |
| Anna Espadalé Gelis | Natural Environment Planning Service, Catalonia |
| Benjamin Caspar | DG ENV |
| Bernd Schuh | ÖIR |
| Elisabetta Maria Rossi | Lombardy Region |
| Erich Dallhammer | ÖIR |
| Eva Papparatti | Executive Agency for Small and Medium-sized Enterprises (EASME) |
| Harald Meimberg | University of Natural Resources and Life Sciences, Vienna |
| Igor Caldeira | CoR |
| Karin Zaunberger | DG ENV |
| Karolina D'Cunha | DG ENV |
| Kira Miskulnig | EASME |
| Lisa Pizzol | University of Venice |
| Nicolas Rossignol | ESPON |
| Philipp LaHaela Walter | ICLEI – Local Governments for Sustainability, Europe |
| Renata Gomez | Regions4 |
| Roberto Rinaldi | CoR |
| Sara Pont Gasau | Natural Environment Planning Service, Catalonia |
| Sylvia Barova | EASME |

Acronyms and legends

| | |
|--------------|--|
| CBD | Convention on Biological Diversity |
| CoR | European Committee of the Regions |
| EGTC | European Grouping of Territorial Cooperation |
| EP | European Parliament |
| ERDF | European Regional Development Fund |
| ESPON | European Observation Network for Territorial Development and Cohesion |
| LRAs | Local and Regional Authorities |
| NUTS | Nomenclature des unités territoriales statistiques Nomenclature of Territorial Units for Statistics |
| ÖIR | Austrian Institute for Regional Studies and Spatial Planning |
| SDG | Sustainable Development Goal |
| SEA | Strategic Environmental Assessment |
| TIA | Territorial Impact Assessment |

Effects of directives – colour coding

| | |
|---|------------------------|
|  | Positive effect |
|  | Slight positive effect |
|  | Neutral |
|  | Slight negative effect |
|  | Negative effect |

Legend – direction of effects



| | |
|---|----------|
|  | Increase |
|  | Decrease |

Table of contents

| | | |
|----------|--|-----------|
| 1 | Introduction | 6 |
| 2 | Methodology: ESPON Quick Check | 8 |
| 2.1 | Identifying potential territorial effects on the economy, society, the environment and governance – designing a conceptual model | 9 |
| 2.2 | Visualising potential territorial effects using indicators | 10 |
| 2.3 | Assessing the intensity of potential effects | 11 |
| 2.4 | Calculating the potential 'regional impact' – combining expert assessments with regional sensitivity | 12 |
| 2.5 | Mapping potential territorial impact | 12 |
| 3 | Preliminary discussion | 14 |
| 3.1 | Initial questions | 14 |
| 3.2 | Territorial planning | 14 |
| 3.3 | Administration and capacity-building | 15 |
| 3.4 | Nature conservation and biodiversity creating jobs | 15 |
| 3.5 | Competing demands | 16 |
| 3.6 | A slower decline, not an improvement | 16 |
| 4 | Expected economic effects | 17 |
| 4.1 | Employment in agriculture, forestry and fishing | 17 |
| 5 | Expected environmental effects | 20 |
| 5.1 | Share of total area under organic farming | 20 |
| 5.2 | Protected areas (NATURA 2000) | 22 |
| 5.3 | Structural Green Infrastructures | 24 |
| 5.4 | Landslide susceptibility | 26 |
| 5.5 | Capacity of ecosystems to avoid soil erosion | 28 |
| 5.6 | Sensitivity to floods | 30 |
| 5.7 | Probability of forest fire hazard | 32 |
| 5.8 | Sensitivity to heatwaves | 34 |
| 6 | Expected societal effects | 36 |
| 6.1 | Self-evaluation of life satisfaction | 36 |
| 7 | Conclusions and recommendations | 39 |
| 7.1 | Lacunae, statistical indicators, and geospatial data | 39 |
| 7.2 | Experts' policy recommendations | 41 |
| 8 | Contributions from previous TIA Exercises | 44 |
| 8.1 | Birds and Habitats Directives (Natura 2000) | 44 |
| 8.2 | Implementation of the 2030 Agenda – influence of SDG 11.3 on urban development through spatial planning | 45 |
| 8.3 | Bioeconomy | 46 |
| 8.4 | Climate neutrality | 47 |

Figures and maps

| | |
|--|----|
| Figure 1. Workshop discussion | 9 |
| Figure 2. Workshop findings: systemic picture | 10 |
| Figure 3. Exposure x territorial sensitivity = territorial impact | 12 |
| Figure 4. Anticipated impact on employment in agriculture, forestry and fishing | 17 |
| Figure 5. Anticipated impact on total share of land under organic farming | 20 |
| Figure 6. Anticipated impact on protected areas (NATURA 2000) | 22 |
| Figure 7. Anticipated impact on Structural Green Infrastructures | 24 |
| Figure 8. Anticipated impact on landslide susceptibility | 26 |
| Figure 9. Anticipated impact on capacity of ecosystems to avoid soil erosion | 28 |
| Figure 10. Anticipated impact on sensitivity to floods | 30 |
| Figure 11. Anticipated impact on probability of forest fire hazard | 32 |
| Figure 12. Anticipated impact on days over 30°C | 34 |
| Figure 13. Anticipated impact on self-evaluation of life satisfaction | 36 |
| | |
| Map 1. Employment in agriculture, forestry and fishing: strong positive effect | 18 |
| Map 2. Employment in agriculture, forestry and fishing: weak positive effect | 19 |
| Map 3. Share of total area under organic farming: weak positive effect | 21 |
| Map 4. Protected areas (NATURA 2000): strong positive effect | 23 |
| Map 5. Structural Green Infrastructures: weak positive effect | 25 |
| Map 6. Landslide susceptibility: strong positive effect | 27 |
| Map 7. Capacity of ecosystems to avoid soil erosion: strong positive effect | 29 |
| Map 8. Sensitivity to floods: strong positive effect | 31 |
| Map 9. Probability of forest fire hazard: strong positive effect | 33 |
| Map 10. Days over 30°C: strong positive effect | 35 |
| Map 11. Self-evaluation of life satisfaction: strong positive effect | 37 |
| Map 12. Self-evaluation of life satisfaction: weak positive effect | 38 |
| Map 13 Share of green urban areas and forests in total land area, by city/greater city | 40 |
| Map 14 Potential risk of agricultural land abandonment in 2030. (a) Grid level (100m resolution); (b) Province level (NUTS 3) | 40 |

1 Introduction

Strong environmental protection is an essential part of the transition towards a low-carbon, climate-neutral, resource-efficient and biodiverse economy, as highlighted in the Commission's [Reflection Paper on a Sustainable Europe by 2030](#). It is necessary to act now to prevent loss of ecosystems and biodiversity, a process that threatens our well-being, prospects for sustainable growth, and life itself on the planet. The same conclusion was reached in the [2019 IPBES Global Assessment Report on Biodiversity and Ecosystem Services](#).

It is clear that subnational levels of government¹, [i.e. all levels of government below the national level](#), are responsible for actually implementing the biodiversity policy framework defined at national level. The upcoming UN CBD COP 15² will be a crucial opportunity to secure formal recognition of local and regional authorities' role in operationalising the new strategic plan for the next decade.

The CoR is closely involved in the preparatory process for the post-2020 biodiversity framework, which is to be adopted at the UN CBD COP15, through the AC SNG ([Advisory Committee on Subnational Governments and Biological Diversity](#)) and in cooperation with other local and regional authorities across the globe, such as Aichi Prefecture in Japan and Quebec in Canada. The CoR is also cooperating with relevant international organisations such as [ICLEI](#) and [Regions4](#).

The strategic relevance of the CoR was also acknowledged by former European Commissioner Karmenu Vella at the two-day event on [Biodiversity and Ecosystem Services](#) co-organised by the CoR's ENVE commission and DG ENV on 23 and 24 May 2019. The [European Parliament Resolution on UN CBD COP15](#) also highlights the role of local and regional authorities in developing and implementing the post-2020 biodiversity framework.

The current challenge is to understand the impact on EU cities and regions of implementing the post-2020 policy framework, based on the [ongoing evaluation by the Commission of the EU Biodiversity Strategy to 2020](#), and looking ahead to publication of the new EU Biodiversity Strategy to 2030.

¹ In this document 'subnational levels of governments' and 'local and regional authorities/LRAs' are used as synonyms.

² Due to the Covid-19 pandemic, there will be [new dates](#) for the 15th meeting of the Conference of the Parties to the Convention on Biological Diversity (UN CBD COP15).

It is also important to understand which indicators cities and regions should refer to when monitoring and reporting action that is being taken at subnational level to halt the loss of biodiversity and degradation of ecosystem services.

2 Methodology: ESPON Quick Check

The Territorial Impact Assessment (TIA) is designed to show regional differentiation in the impact of EU policies. The ESPON TIA Tool³ is an interactive web application that can be used to support policy-makers and practitioners in identifying the potential territorial impacts of new EU legislation, policies and directives (LPDs). The ESPON TIA Quick Check approach combines a workshop where the systemic relations between a policy and its territorial consequences are identified using a set of indicators describing the sensitivity of European regions.

Examining all the relevant indicators in a workshop setting helps to guide an expert discussion about the potential territorial effects of an EU policy proposal. The guided expert discussion produces assessments of the potential territorial impact of an EU policy across different thematic fields (the economy, society, the environment, governance) for a range of indicators. The results are fed into the ESPON TIA Quick Check web tool.

The web tool translates the combination of expert assessments of exposure with the various levels of sensitivity of regions into maps showing the potential territorial impact of EU policy on NUTS3 regions. The maps serve as a starting-point for further discussion of the different impacts of a given EU policy on different regions. The experts taking part in the workshop provide important input for this quick check on the potential territorial effects of an EU policy proposal.

The workshop on the implementation of the post-2020 biodiversity framework in the EU was held on 31 January 2020 in Brussels and brought together the CoR rapporteur for the opinion on biodiversity, [Roby Biwer \(LU/PES\)](#), Philipp LaHaela Walter from ICLEI Europe, and a number of experts representing different organisations and LRAs. Two moderators from the ÖIR, provided by ESPON, prepared and guided the workshop and handled the ESPON TIA tool.

³ https://www.espon.eu/main/Menu_ToolsandMaps/TIA/.

Figure 1

Workshop discussion



Source: Territorial impact assessment expert workshop, Brussels, 31 January 2020, ÖIR

2.1 Identifying potential territorial effects on the economy, society, the environment and governance – designing a conceptual model

In the first part of the TIA workshop, experts discussed, using a territorial or place-based approach, the potential effects of implementing the post-2020 biodiversity framework.

This discussion revealed possible territorial impacts of implementing the post-2020 biodiversity framework considering indicators for the economy, society, the environment and governance. This included potential interdependencies and feedback-loops between different effects (see Figure 2).

- Landslide susceptibility
- Capacity of ecosystems to avoid soil erosion
- Sensitivity to floods
- Probability of forest fire hazard
- Sensitivity to heatwaves (days over 30°C)

Visualising potential territorial impacts on society

- Self-evaluation of life satisfaction

The experts also agreed that the following indicators, which are not included in the ESPON TIA Quick Check web tool, were relevant:

- health: proximity to green areas, biodiversity as a life-style factor
- number of 'green jobs' ('green label')
- macroeconomic stability
- environment-related funding
- social awareness (such as environmental voluntary activities, environmental process participation, recycling habits)
- political stability
- proportion of budget and public officials dedicated to environmental issues
- capacity-building programmes for public officials
- mainstreaming of environment issues and biodiversity in public policies
- endangered species and habitats
- presence of alien species

2.3 Assessing the intensity of potential effects

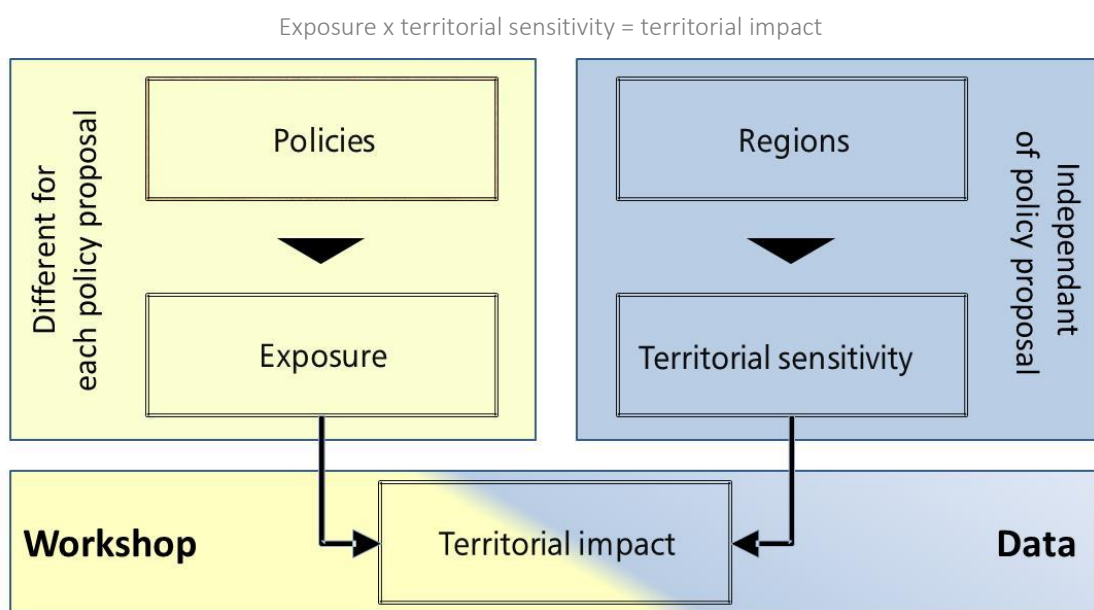
The workshop participants were asked to estimate the potential effects deriving from implementation of the post-2020 biodiversity framework. They assessed the potential effect on territorial welfare by assigning the following scores:

- ++ strong positive effect on territorial welfare (strong increase)
- + weak positive effect on territorial welfare (increase)
- o no effect/unknown effect/effect cannot be specified
- - weak negative effect on territorial welfare (decrease)
- -- strong negative effect on territorial welfare (strong decrease)

2.4 Calculating the potential 'regional impact' – combining expert assessments with regional sensitivity

The ESPON TIA Quick Check combines expert assessments of the potential impact of implementing the post-2020 biodiversity framework (**exposure**) with indicators showing the sensitivity of regions, displayed on maps of the differential territorial impact. This approach is based on the **vulnerability concept** developed by the Intergovernmental Panel on Climate Change (IPCC)⁴. In this case, the effects of a particular policy measure (exposure) are combined with the characteristics of a region (**territorial sensitivity**) to produce potential territorial impacts (Figure 3).

Figure 3



Source: ÖIR, 2015

- 'Territorial sensitivity' is the baseline situation of the region in terms of its ability to cope with external effects. It is a characteristic of a region that can be represented by different indicators independently of the issue analysed.
- 'Exposure' is the intensity of the potential impact of implementing the post-2020 biodiversity framework on a specific indicator. Exposure reflects the experts' assessment, i.e. the main findings of the expert discussion during the TIA workshop.

2.5 Mapping potential territorial impact

The result of the territorial impact assessment is presented in maps which display potential territorial impacts by combining the expert assessment of exposure with the territorial sensitivity of a region

⁴ https://www.ipcc.ch/site/assets/uploads/2018/03/SREX-Chap2_FINAL-1.pdf.

represented by an indicator at NUTS3 level. The maps are created by multiplying the baseline value of the indicator by a number derived from the expert assessment. The maps obtained reclassify regions in percentiles (shown by colour intensity).

Whereas the expert assessment gives a qualitative indicator (i.e. strong positive effect/weak positive effect/no effect/weak negative effect/strong negative effect on territorial welfare), sensitivity is a quantitative indicator.

3 Preliminary discussion

The objective of the territorial impact assessment was to map relevant indicators at regional level in Europe in order to have a first rough assessment of the causes of biodiversity loss and ecosystem services degradation in different regions and of the relevant measures and policies to address this issue.

The indicators were defined during the workshop and then mapped by the workshop facilitators. The maps will help to identify any regions whose specific demographic, economic or geographical characteristics make them more vulnerable to biodiversity loss and ecosystem services degradation, as well as identifying the resources they have to address this.

During the morning session, the rapporteur, [Roby Biwer \(LU/PES\)](#), and expert speakers gave introductory talks. The methodology was then explained to participants and a preliminary discussion took place. During the afternoon session, the territorial effects of the policies discussed were shown to participants, who commented on them and formulated possible policy proposals.

3.1 Initial questions

- What were the main problems with implementation of the biodiversity strategy 2011-2020?
- How can local and regional authorities be better involved in implementation of the future strategy?
- What data are available for monitoring implementation of the biodiversity strategy and what other sources or combination of existing data could help in this regard?
- Which regions are most vulnerable and how can the biodiversity framework guide EU policy and financial instruments to support such regions?

3.2 Territorial planning

Participants stressed that territorial planning was critical to biodiversity. There are multiple demands at this level. Territorial planning in which biodiversity is a priority requires a change in approach so that human needs are not the only needs addressed. Biodiversity had an intrinsic value, so the question was how to reconcile this with human needs. Biodiversity provided crucial benefits to society in the medium and long term (this being a critical reason for its resilience). Enabling people, and society, to benefit from biodiversity meant understanding the links between health (both physical and mental) and nature.

It also meant understanding the connection between our actions as consumers and their consequences for nature and biodiversity.

From a strictly human interest perspective, biodiversity-oriented territorial planning was deemed to be more successful in preventing and managing natural disasters. Ecosystems could basically be seen as providing 'free help' in containing or avoiding heatwaves, floods and droughts. Biodiversity was a critical component of ecosystems' functioning and resilience.

Ecosystems were impacted by human activities. If territorial planning can indeed be used to protect biodiversity, participants also noted that it must become a part of society's development. In particular, policy design must take into consideration the current – and concurrent – European trends of urban sprawl, demographic decline, and rural depopulation.

3.3 Administration and capacity-building

Holistic or cross-sectoral approaches required political and administrative changes. Goals must be coordinated and aligned between several different levels of government, as this would not only promote policy coherence, but also simplify implementation. Capacity-building was needed to promote such cross-sectoral approaches, allowing non-experts to understand biodiversity and biodiversity professionals to become aware of the needs and wants of other segments of society.

It was mentioned during the workshop that the EU biodiversity framework (Natura 2000) still reflected past perceptions of ecology, focusing mainly on biological aspects (species or habitats), whereas economic and social factors – more related to human activities – were not considered operational objectives. This made it very difficult for local and regional governments to introduce the human dimension into Natura 2000/biodiversity objectives, for lack of a framework and instruments.

3.4 Nature conservation and biodiversity creating jobs

Involvement of the private sector was important to minimise possible conflicts with economic activity. Public support for green industries and the bioeconomy could be a mechanism for reconciling nature and the economy. Creating positive incentives for biodiversity and recognising the positive economic externalities of biodiversity (as mentioned above, increasing regions' resilience to natural disasters) should be part of a European approach to this issue.

3.5 Competing demands

However much policies are designed to reconcile protecting and strengthening biodiversity with socio-economic needs, there are conflicting priorities. Less intensive agriculture could protect biodiversity, but would reduce total agricultural output. There was also competition for land use, not only between human activities and nature, but also between different human activities. Decision-makers had to address opposing priority issues, such as demographic change – population decline presenting potential benefits for biodiversity but with very negative consequences for social security and healthcare systems, for example – within a coherent political vision, to avoid adopting conflicting policies that cancel each other out.

3.6 A slower decline, not an improvement

Finally, workshop participants discussed the effects of a biodiversity strategy. Whereas some believed that the goal, and a mark of success, should be increased biodiversity, others stressed that human presence is in itself detrimental to biodiversity. A successful biodiversity strategy would consequently not halt the loss of biodiversity, but would slow its decline. This should not mean relaxing environmental goals, but being more realistic about what we can achieve, and more ambitious when setting goals.

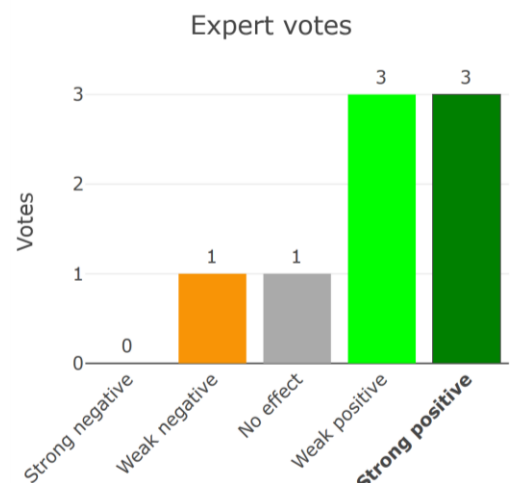
4 Expected economic effects

4.1 Employment in agriculture, forestry and fishing

Experts concluded that as action is taken to protect and promote biodiversity, new job opportunities in relevant sectors, including agriculture, forestry and fishing, could be created. An appropriate indicator of this impact would be employment in agriculture, forestry and fishing. Three experts anticipated strong positive effects and three weak positive effects. One expert anticipated a weak negative effect and one expert did not see this indicator as relevant.

Figure 4

Anticipated impact on employment in agriculture, forestry and fishing



Source: Territorial impact assessment expert workshop, Brussels, 31 January 2020

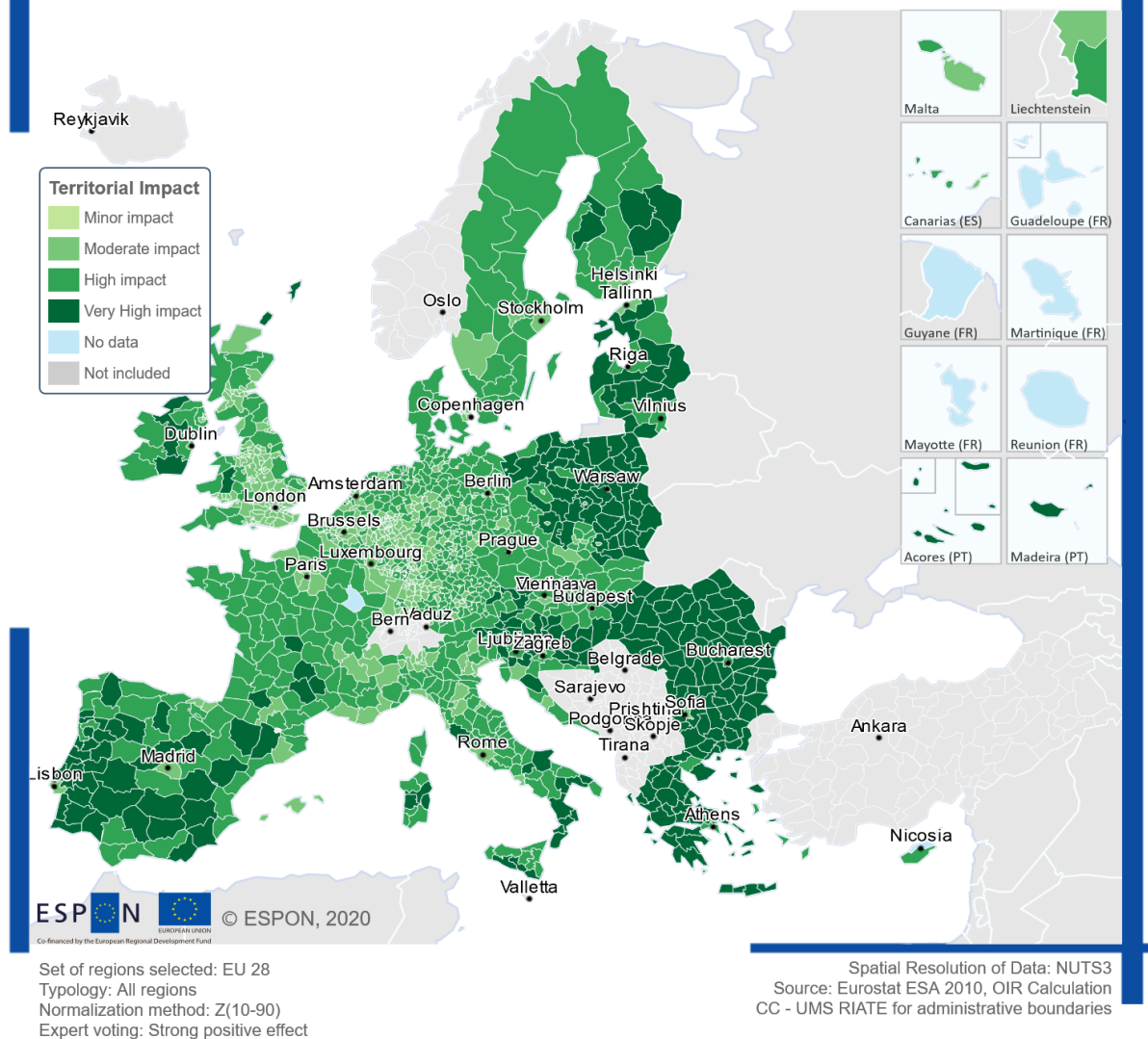
Employment in agriculture, forestry and fishing is represented as a proportion of total employment. Regions with a higher proportion of employment in the primary sector are expected to be influenced more by changes that affect agriculture, forestry and fishing. Sensitivity is thus directly proportional to the share of jobs in agriculture, forestry and fishing.

The following maps show the potential territorial impact of the post-2020 biodiversity framework on employment in agriculture, forestry and fishing. Map 1 combines the expert assessment of a strong positive effect with the sensitivity of different regions. A very high impact could be seen in 22% of regions. These regions are located e.g. in eastern and south-eastern Europe, the Iberian peninsula, and parts of Austria, Italy, Finland, and Ireland. A high impact is seen in 42% of regions and moderate impact in 37%.

Map 1

Employment in agriculture, forestry and fishing: strong positive effect

Employment in agriculture, forestry and fishing

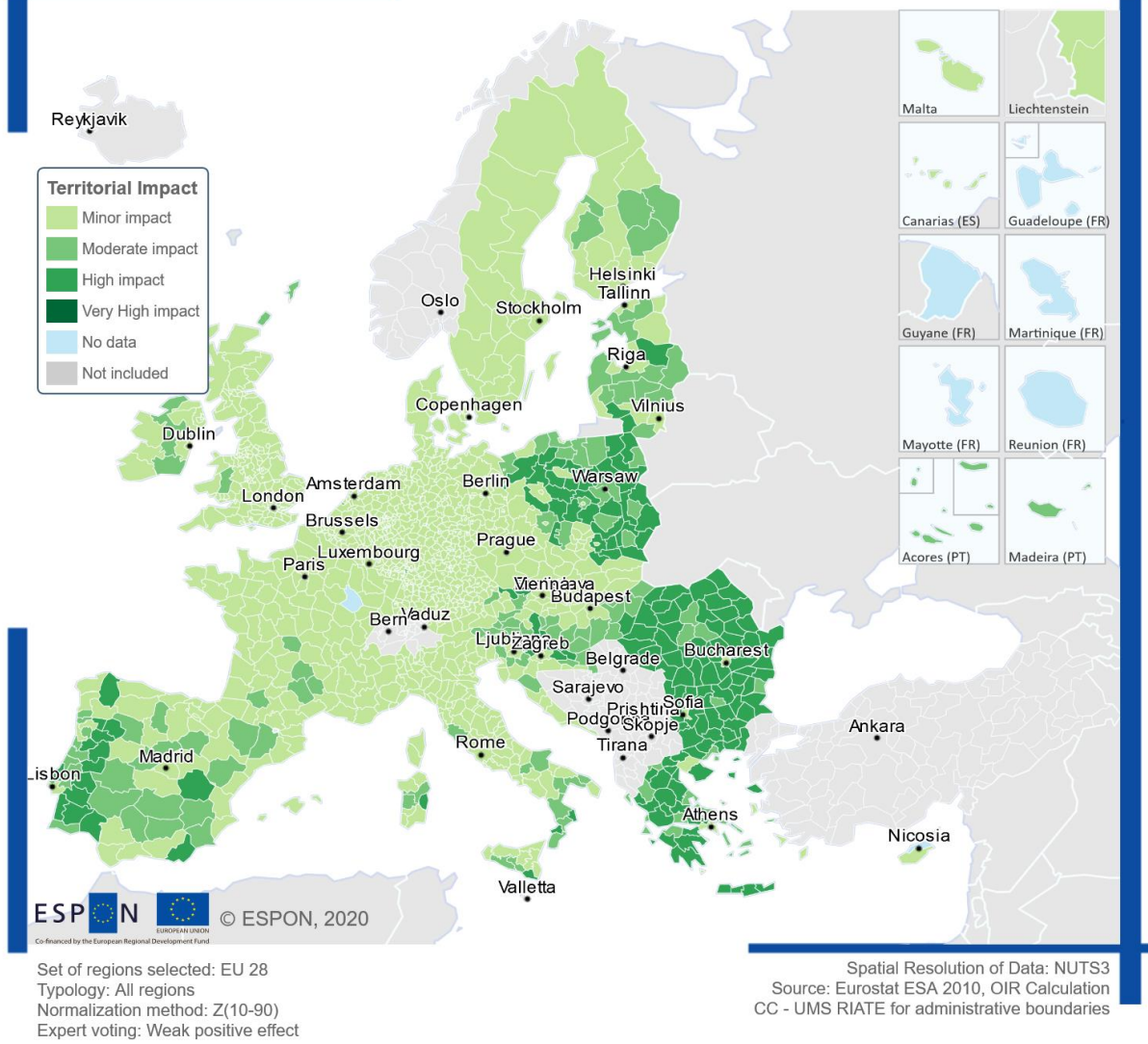


Source: Territorial impact assessment expert workshop, Brussels, 31 January 2020

Map 2 combines the expert assessment of a weak positive effect with the sensitivity of different regions. A high impact would be seen in 12% of regions and a moderate impact in 10%. These regions are located e.g. in eastern and south-eastern Europe, the Iberian peninsula and parts of Austria, Croatia, Italy, and Ireland. A minor impact was anticipated in the majority of regions.

Impact on employment in agriculture, forestry and fishing: weak positive effect

Employment in agriculture, forestry and fishing



Source: Territorial impact assessment expert workshop, Brussels, 31 January 2020

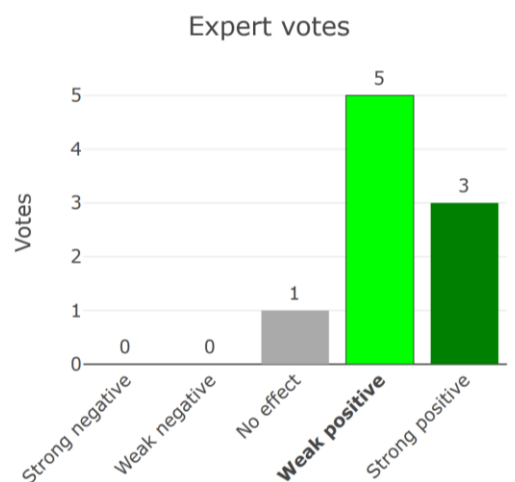
5 Expected environmental effects

5.1 Share of total area under organic farming

The experts agreed that implementation of the biodiversity strategy would facilitate less intensive agriculture or food protection measures, so that the organic cultivation could increase. Three experts anticipated a strong positive effect and five a weak positive effect. One expert did not see this indicator as relevant.

Figure 5

Anticipated impact on total share of land under organic farming



Source: Territorial impact assessment expert workshop, Brussels, 31 January 2020

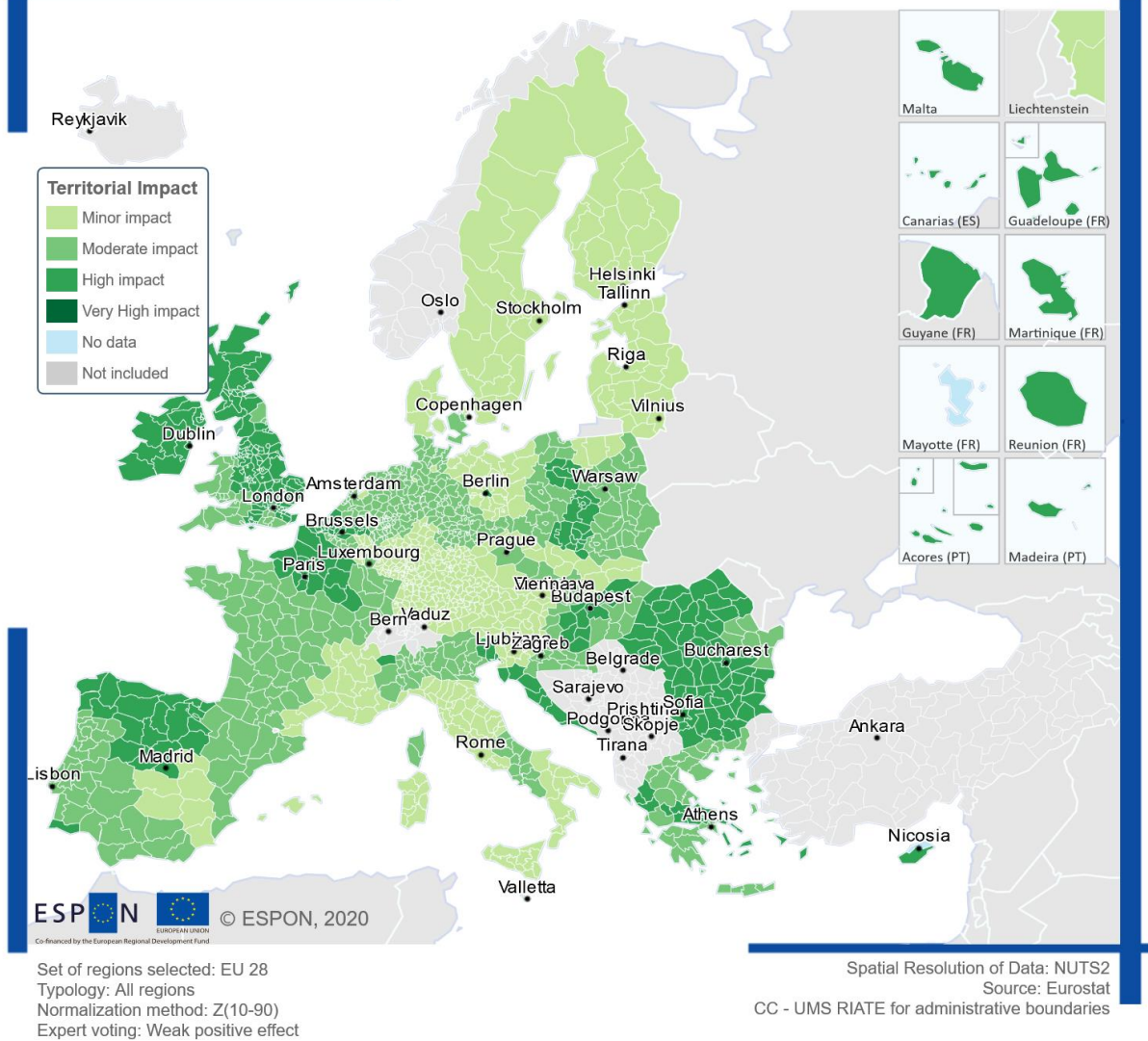
The share of total area under organic farming is represented as the amount of land under organic farming as a proportion of total utilised agricultural land. Regions with a low share of total land under organic farming would have more areas that could be switched to organic farming and these are therefore likely to be more sensitive to the post-2020 biodiversity framework. Sensitivity is thus inversely proportional to the share of total land under organic farming.

Map 3 shows the potential territorial impact of the post-2020 biodiversity framework on the total amount of land under organic farming as a proportion of total utilised agricultural land. It combines the expert assessment of a weak positive effect with the sensitivity of different regions. A very high impact is expected in 26% of regions. These regions are found e.g. in Spain, France, Belgium, Croatia, Greece, Bulgaria, Romania, Hungary, Poland, Ireland, and the UK. A moderate impact is expected in 38% of regions and minor impact in 36%.

Map 3

Share of total area under organic farming: weak positive effect

Share of total area under organic farming

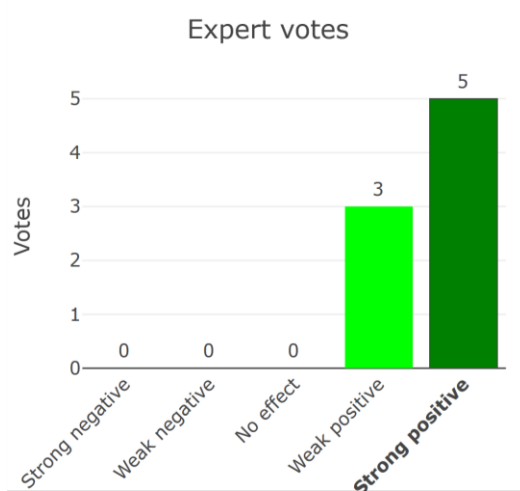


Source: Territorial impact assessment expert workshop, Brussels, 31 January 2020

5.2 Protected areas (NATURA 2000)

The experts concluded that the biodiversity strategy could increase the extent of conservation areas. An appropriate indicator is the proportion of land protected under the Natura 2000 programme. All experts considered this effect to be positive: five experts voted for a strong positive and three for a weak positive effect.

Figure 6
Anticipated impact on protected areas (NATURA 2000)

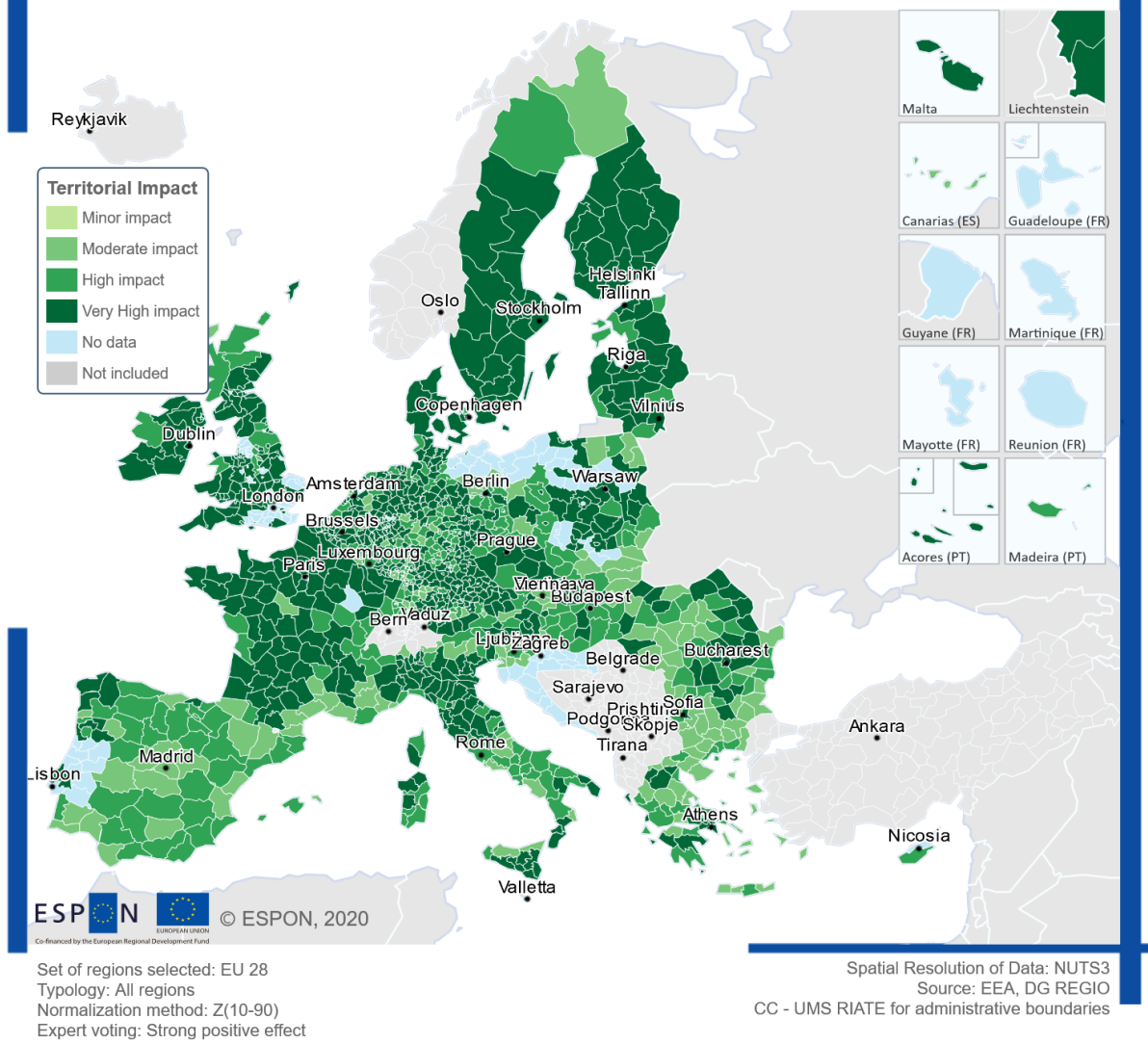


Source: Territorial impact assessment expert workshop, Brussels, 31 January 2020

The indicator of a region's sensitivity based on its conservation areas is measured by the number of Natura 2000 sites in a total NUTS 3 area. Regions with a lower share of conservation areas are expected to be more sensitive to the territorial impact of the post-2020 biodiversity framework. Sensitivity is thus indirectly proportional to the share of areas protected under the Natura 2000 programme.

Map 4 shows the potential territorial impact of the post-2020 biodiversity framework based on the share of protected areas. It combines the expert judgement of a strong positive effect with the sensitivity of specific regions. A very high impact is seen in 61% of regions. This strong positive effect is fairly evenly distributed across all European regions. A high impact is seen in 25% of regions and moderate impact in 14%.

Protected areas (NATURA 2000)



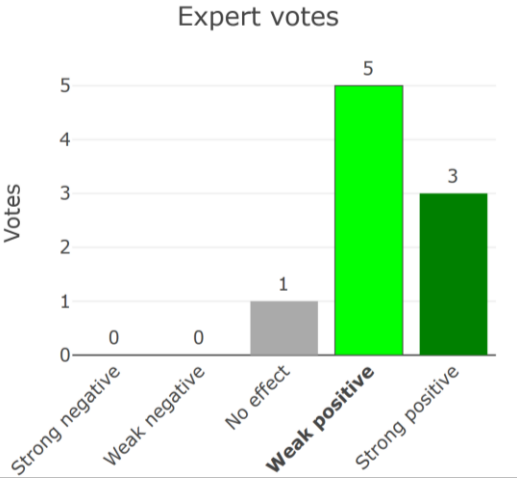
Source: Territorial impact assessment expert workshop, Brussels, 31 January 2020

⁵ Note that some data are missing, e.g. for Croatia, Portugal, Germany, and Poland.

5.3 Structural Green Infrastructures

In addition to effects on protected conservation areas, experts expected implementation of the biodiversity strategy to affect the development of green infrastructure. Three experts anticipated a strong positive effect on Structural Green Infrastructures, while five anticipated a weak positive impact. One expert did not expect a relevant effect.

Figure 7
Anticipated impact on Structural Green Infrastructures



Source: Territorial impact assessment expert workshop, Brussels, 31 January 2020

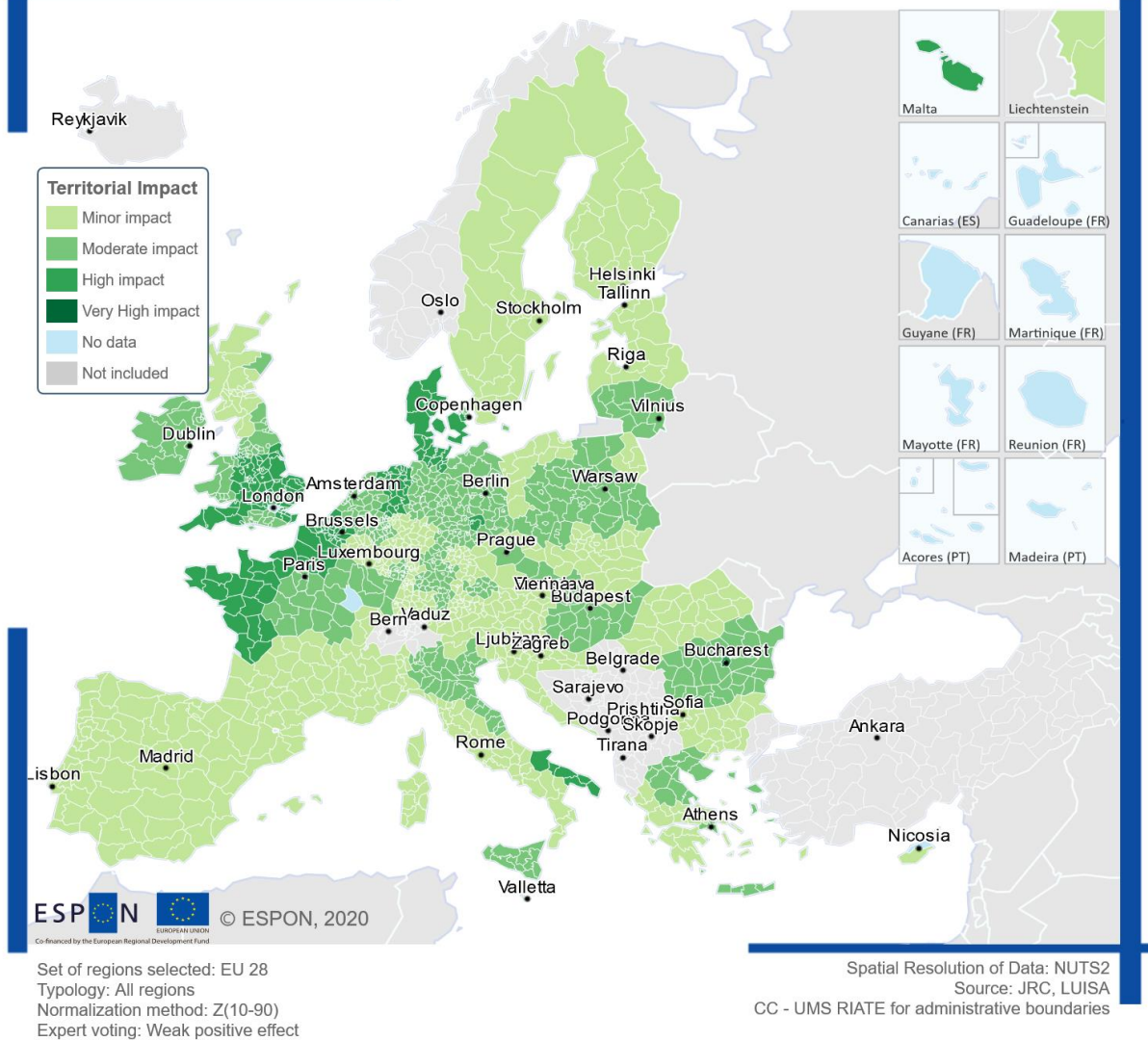
This indicator shows Structural Green Infrastructures as a proportion of the total area. Regions with a lower share of Structural Green Infrastructures are expected to have more space to expand green infrastructure. Sensitivity is thus inversely proportional to the share of green infrastructure.

Map 5 shows the potential territorial impact of the post-2020 biodiversity framework based on the share of Structural Green Infrastructures, combining the expert assessment of a weak positive effect with the sensitivity of specific regions. A high impact is seen in 15% of regions. These regions are located e.g. in southern Italy, north-west France, southern UK and Denmark, as well as in parts of Belgium, the Netherlands and Germany. A moderate impact is seen in 40% of regions and minor impact in 45%.

Map 5

Structural Green Infrastructures: weak positive effect

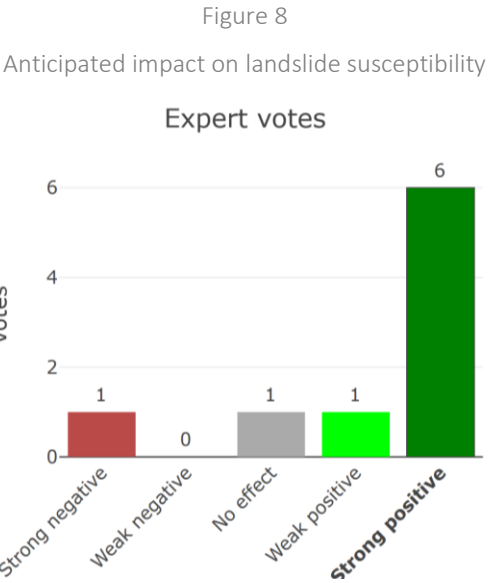
Structural Green Infrastructures



Source: Territorial impact assessment expert workshop, Brussels, 31 January 2020

5.4 Landslide susceptibility

Greater biodiversity makes the ecosystem less vulnerable to negative environmental impacts. This also means reducing susceptibility to landslides. Six experts assessed the effect of implementing the post-2020 biodiversity framework on landslide susceptibility as strong positive and one as weak positive. However, one expert expected a strong negative effect, i.e. that the biodiversity strategy would increase landslide susceptibility. One expert did not see a relevant effect.



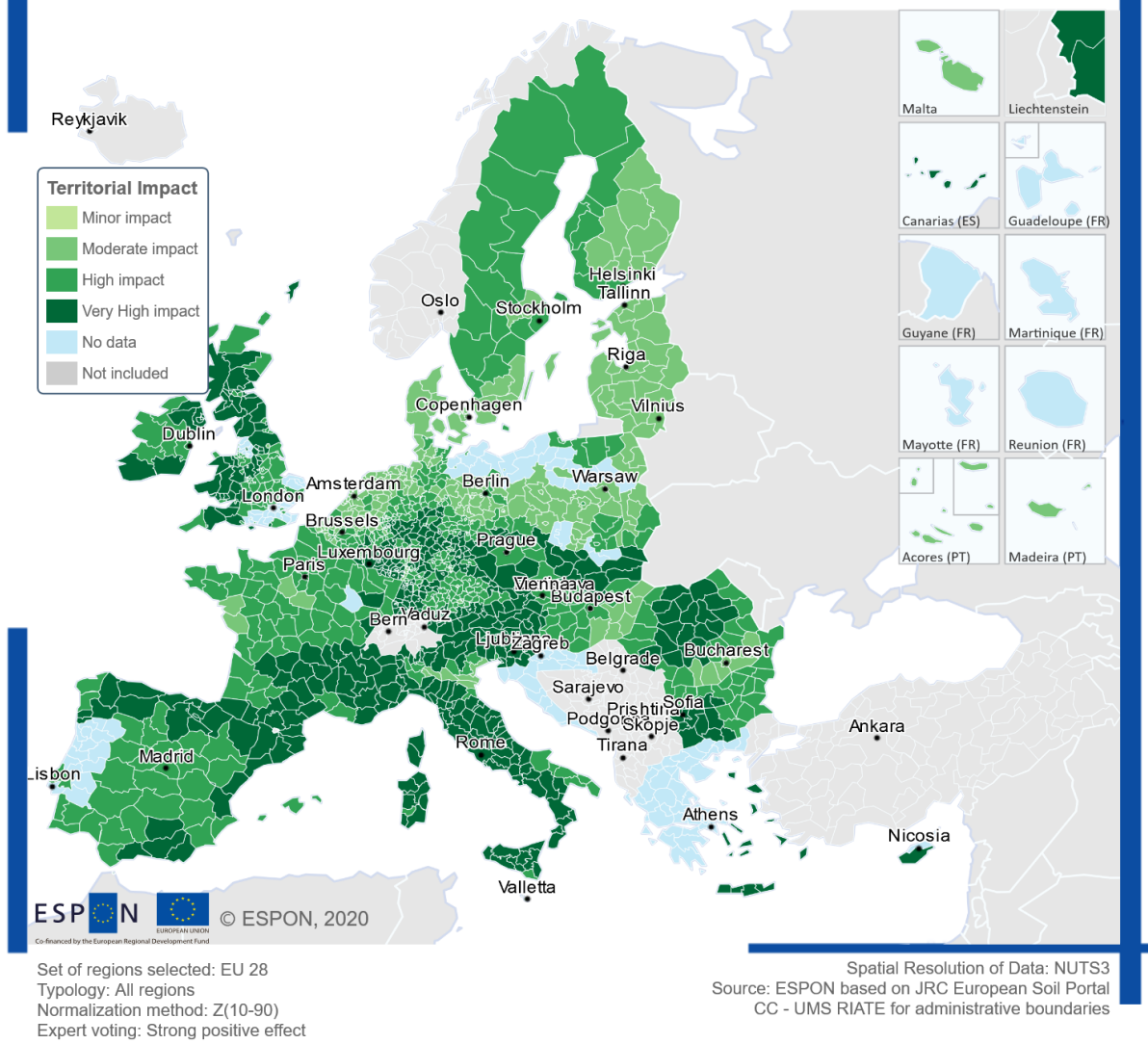
Source: Territorial impact assessment expert workshop, Brussels, 31 January 2020

The sensitivity of a region to potential ways of dealing with landslides is expressed as the spatial likelihood of landslide occurrence. Regions showing higher landslide susceptibility are expected to be more sensitive than others to potential measures to influence landslide susceptibility. Sensitivity is thus directly proportional to landslide susceptibility.

Map 6 shows the potential territorial impact of the post-2020 biodiversity framework with respect to landslide susceptibility. It combines the expert assessment of a strong positive effect with the sensitivity of specific regions. A very high impact is seen in 38% of regions, including Bulgaria, Romania, Slovakia, the Czech Republic, Italy, Austria, Germany, France, Spain, and the UK. A high impact is seen in 41% of regions and a moderate impact in 21%.

Landslide susceptibility: strong positive effect⁶

Landslide susceptibility



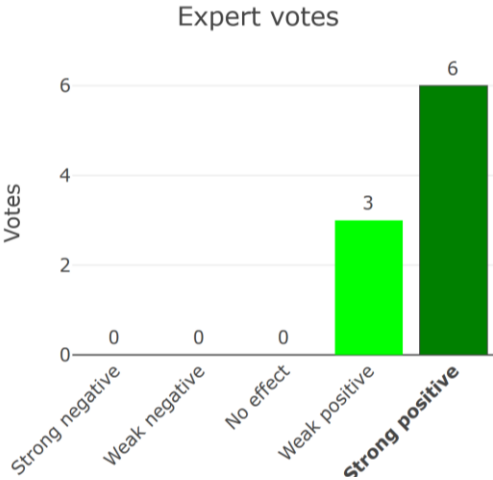
Source: Territorial impact assessment expert workshop, Brussels, 31 January 2020

⁶ Note that some data are missing, e.g. for Croatia, Portugal, Germany, and Poland.

5.5 Capacity of ecosystems to avoid soil erosion

As well as preventing landslides, higher biodiversity can help to reduce soil erosion. All experts expected this effect to be positive: six experts voted for a strong positive effect and three for a weak positive effect.

Figure 9
Anticipated impact on capacity of ecosystems to avoid soil erosion

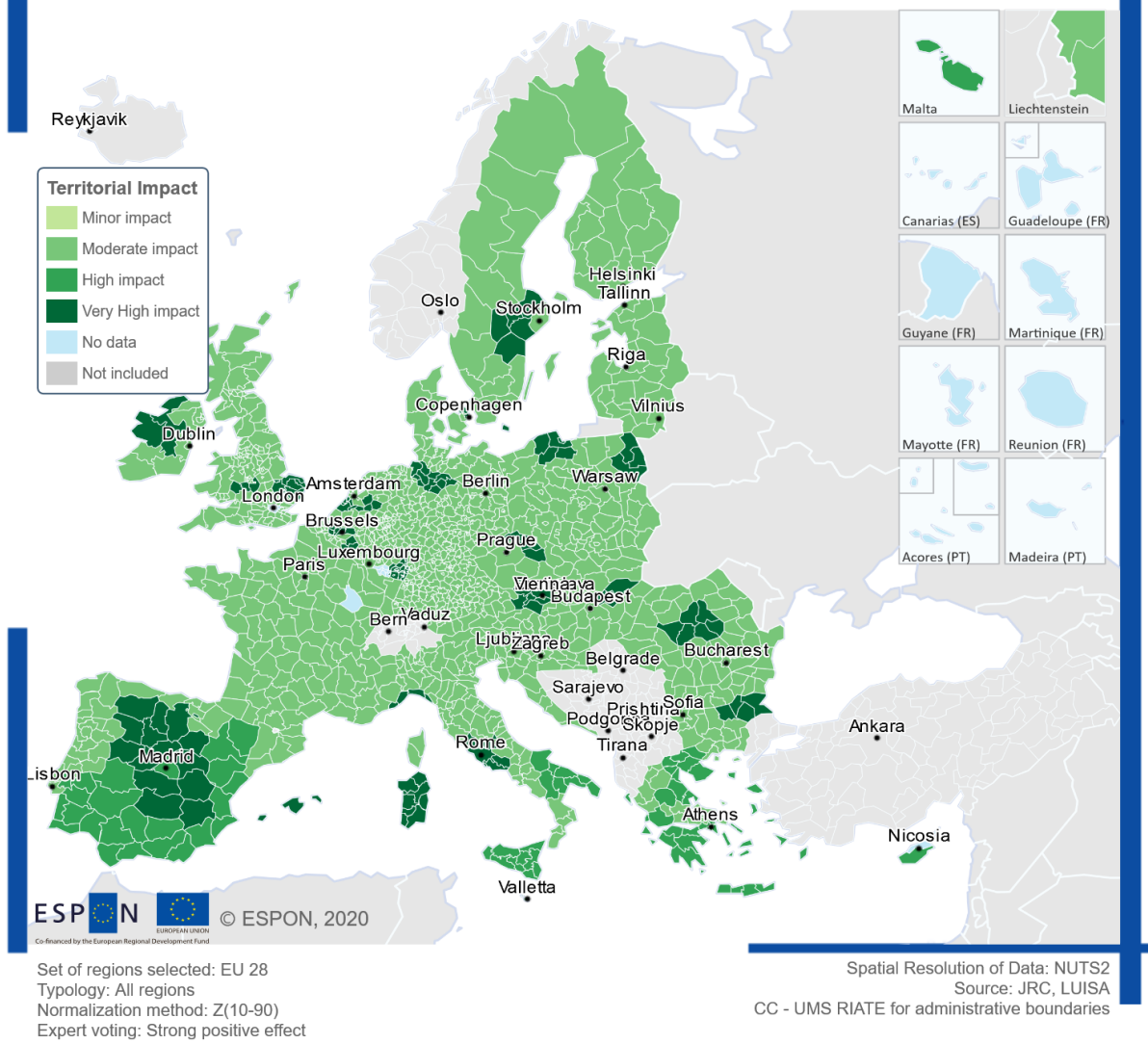


Source: Territorial impact assessment expert workshop, Brussels, 31 January 2020

The indicator measures the capacity of ecosystems to avoid soil erosion. Regions showing a lower capacity of ecosystems to avoid soil erosion are expected to be more sensitive to measures influencing erosion than others. Sensitivity is thus indirectly proportional to the likelihood of soil erosion occurrence.

Map 7 shows the potential territorial impact of the post-2020 biodiversity framework on the capacity of ecosystems to avoid soil erosion. It combines the expert assessment of a strong positive effect with the sensitivity of specific regions. A very high impact is seen in 11% of regions. Most of these regions are clustered, in for example Sweden, Poland, Germany, the Czech Republic, Italy, Romania, and the Netherlands. Many regions around Madrid also see a very high impact. A high impact is seen in 6% of regions and a moderate impact in 83%.

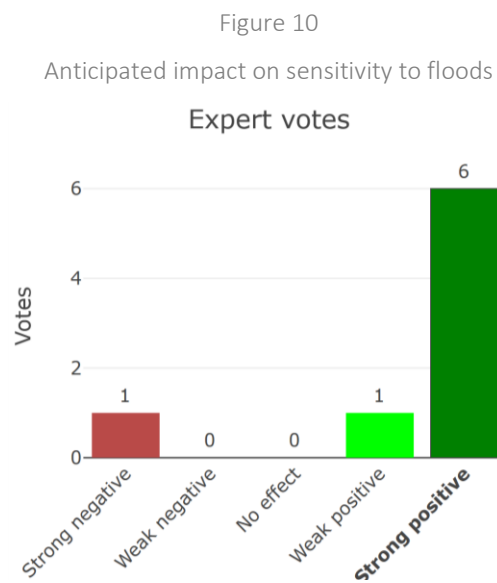
Capacity of ecosystems to avoid soil erosion



Source: Territorial impact assessment expert workshop, Brussels, 31 January 2020

5.6 Sensitivity to floods

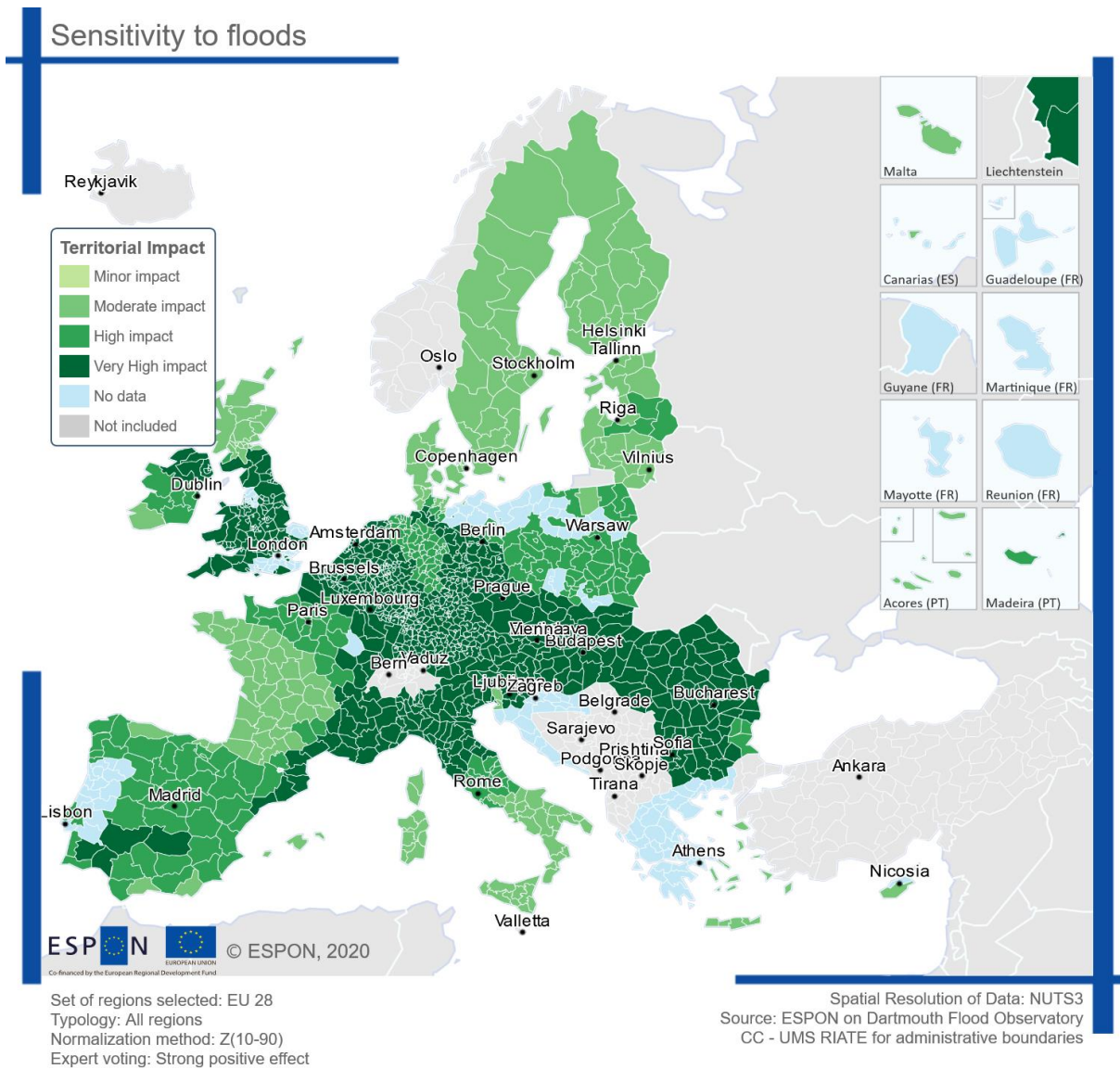
The experts discussed whether implementing the post-2020 biodiversity framework would help to reduce flooding. Six experts assessed the effect as strong positive, one as weak positive. One expert thought the effect would be strong negative, i.e. that the biodiversity strategy would increase sensitivity to floods.



Source: Territorial impact assessment expert workshop, Brussels, 31 January 2020

The sensitivity of a region to floods is expressed as the spatial likelihood of floods occurring. Regions showing higher flood risk are expected to be more sensitive to measures to reduce the likelihood of floods. Sensitivity is thus directly proportional to the likelihood of floods occurring.

Map 8 shows the potential territorial impact of the post-2020 biodiversity framework on sensitivity to floods. It combines the expert assessment of a strong positive effect with the sensitivity of specific regions. A very high impact is seen in 65% of regions. Regions where there is a high risk of flooding, e.g. in the Alps, the Danube basin, the Rhine basin or the Elbe basin, would benefit most, and show a very high impact. A high impact is seen in 18% of regions and a moderate impact in 17%.



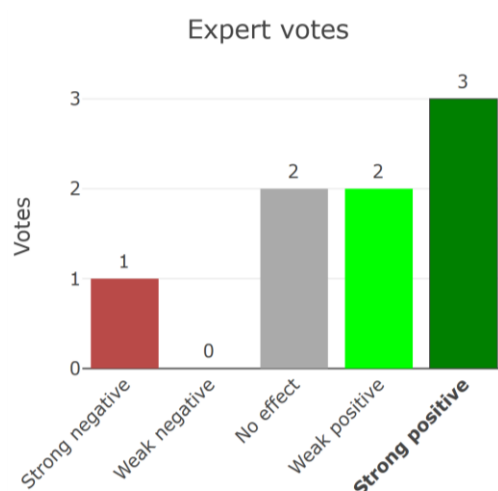
Source: Territorial impact assessment expert workshop, Brussels, 31 January 2020

⁷ Note that some data source are missing, e.g. for Croatia, Portugal, Germany, Poland, and Greece.

5.7 Probability of forest fire hazard

Greater biodiversity with implementation of the post-2020 biodiversity framework would contribute to a decrease in forest fire hazard. Three experts assessed this effect as strong positive and two experts as weak positive. One expert voted for strong negative. Two experts did not expect a relevant effect.

Figure 11
Anticipated impact on probability of forest fire hazard

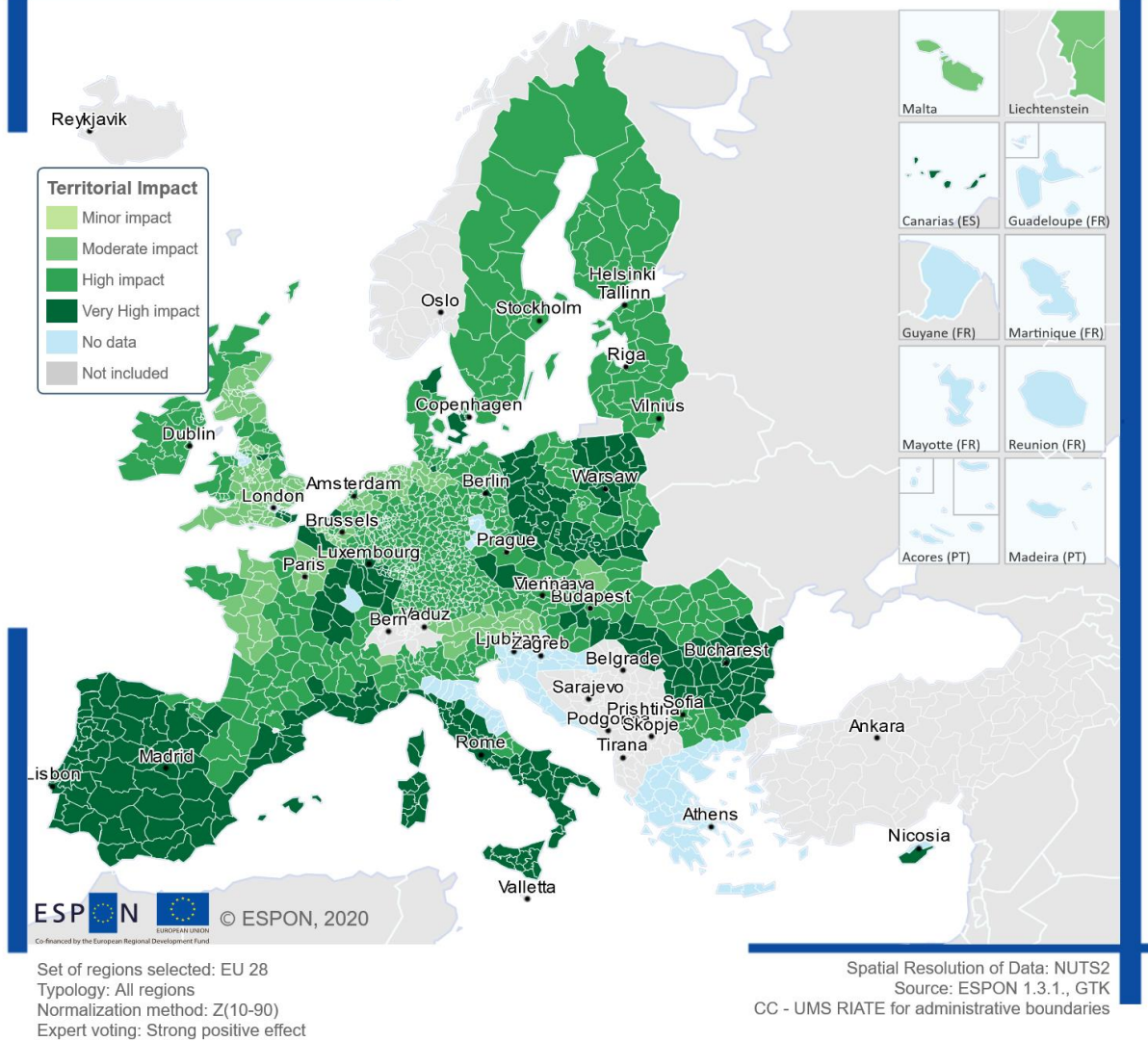


Source: Territorial impact assessment expert workshop, Brussels, 31 January 2020

The sensitivity of a region according to the probability of forest fire hazard is indicated on a scale from 1 (= very low) to 5 (= very high). Regions showing a higher probability of forest fire hazard are expected to be more sensitive to measures addressing this phenomenon. Sensitivity is thus directly proportional to the probability of forest fire hazard.

Map 9 shows the potential territorial impact of the post-2020 biodiversity framework based on the probability of forest fire hazard. It combines the expert assessment of a strong positive effect with the sensitivity of specific regions. Regions in southern Europe (Italy, the Iberian peninsula, the French Mediterranean coast) as well as regions in eastern Europe (Bulgaria, Romania and Poland) see a very high impact. A high impact is seen in 58% of regions and a moderate impact in 18%.

Probability of forest fire hazard

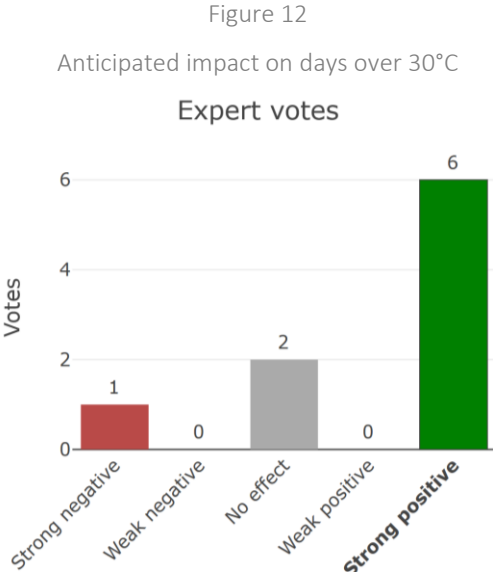


Source: Territorial impact assessment expert workshop, Brussels, 31 January 2020

⁸ Note that some data are missing, e.g. for Croatia, Germany, and Italy.

5.8 Sensitivity to heatwaves

The experts concluded that measures to increase biodiversity would help to reduce the negative effects of heatwaves. Six experts voted for strong positive and one expert voted for strong negative effects. Two experts did not anticipate a relevant effect.



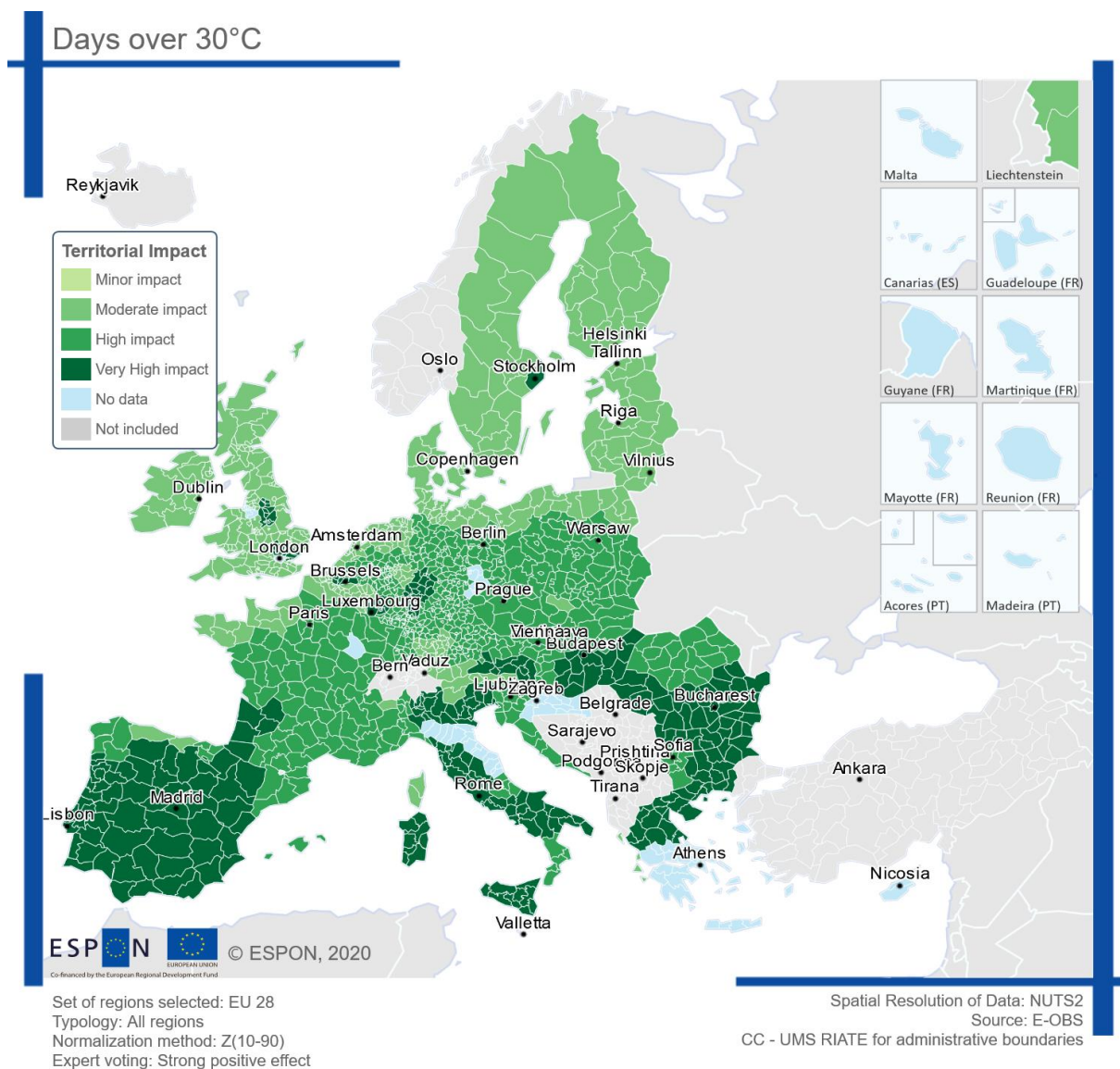
Source: Territorial impact assessment expert workshop, Brussels, 31 January 2020

The sensitivity of a region to heatwaves was measured as the number of days over 30 °C. Regions suffering from a high frequency of heatwaves are expected to be more sensitive. Sensitivity is thus directly proportional to the frequency of heatwaves.

Map 10 shows the potential territorial impact of the post-2020 biodiversity framework on regions with a high sensitivity to heatwaves. It combines the expert assessment of a strong positive effect with the sensitivity of specific regions. It highlights very clearly that the regions in southern Europe in particular would see a very high positive impact, e.g. regions in Portugal, Spain, Italy, Greece, or Bulgaria. A very high impact could also be seen in several urban regions, e.g. Stockholm, regions north of London (Essex, Bedfordshire) and the Midlands (Leeds, Sheffield) in the UK, Luxembourg, the German Ruhr region (Darmstadt), and German cities such as Wiesbaden and Frankfurt. A high impact is expected in 45% of regions and a moderate impact in 31%.

Map 10

Days over 30°C: strong positive effect⁹



Source: Territorial impact assessment expert workshop, Brussels, 31 January 2020

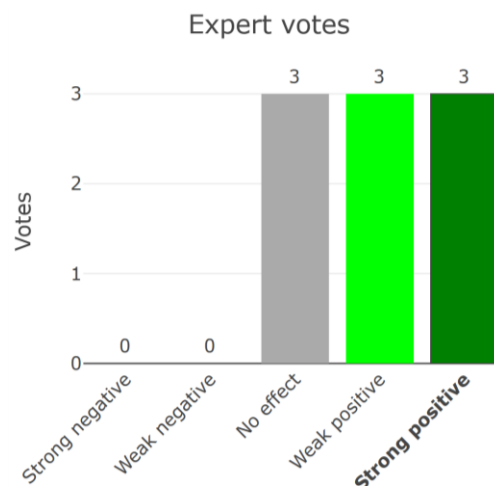
⁹ Note that some data are missing, e.g. for Croatia, Greece, Italy, and Germany.

6 Expected societal effects

6.1 Self-evaluation of life satisfaction

The experts thought that the biodiversity strategy would lead to more and better green areas and to infrastructure which would improve people's quality of life and especially their health. This would result in a higher life satisfaction. Three experts anticipated a strong positive effect and three a weak positive. Three experts did not expect a relevant effect.

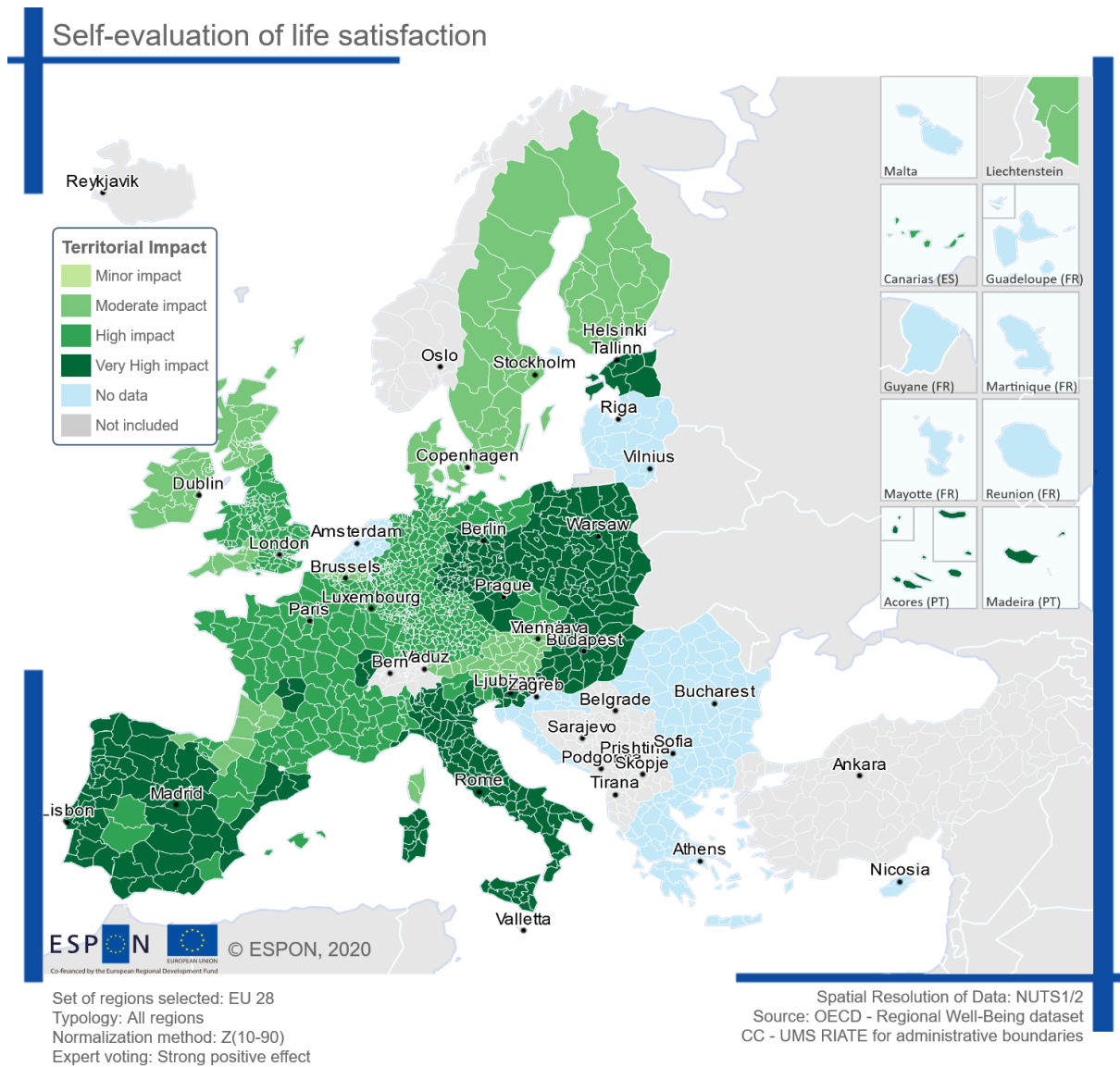
Figure 13
Anticipated impact on self-evaluation of life satisfaction



Source: Territorial impact assessment expert workshop, Brussels, 31 January 2020

Self-evaluation of life satisfaction is expressed as an average score from 0 to 10 in reply to the following question: "On which step of the ladder would you say you personally feel you stand at this time?" Regions with lower self-evaluation of life satisfaction would be expected to be more sensitive. Sensitivity is thus inversely proportional to the level of life satisfaction.

Maps 11 and 12 show the potential territorial impact on life satisfaction of implementing the post-2020 biodiversity framework. Map 11 combines the expert assessment of a strong positive effect with the sensitivity of specific regions. A very high impact is seen in 31% of regions, located in Estonia, Poland, the Czech Republic, Slovakia, Hungary, Slovenia, Italy, Portugal, and Spain, as well as parts of Germany and France. A high impact is seen in 54% of regions and a moderate impact in 15%.

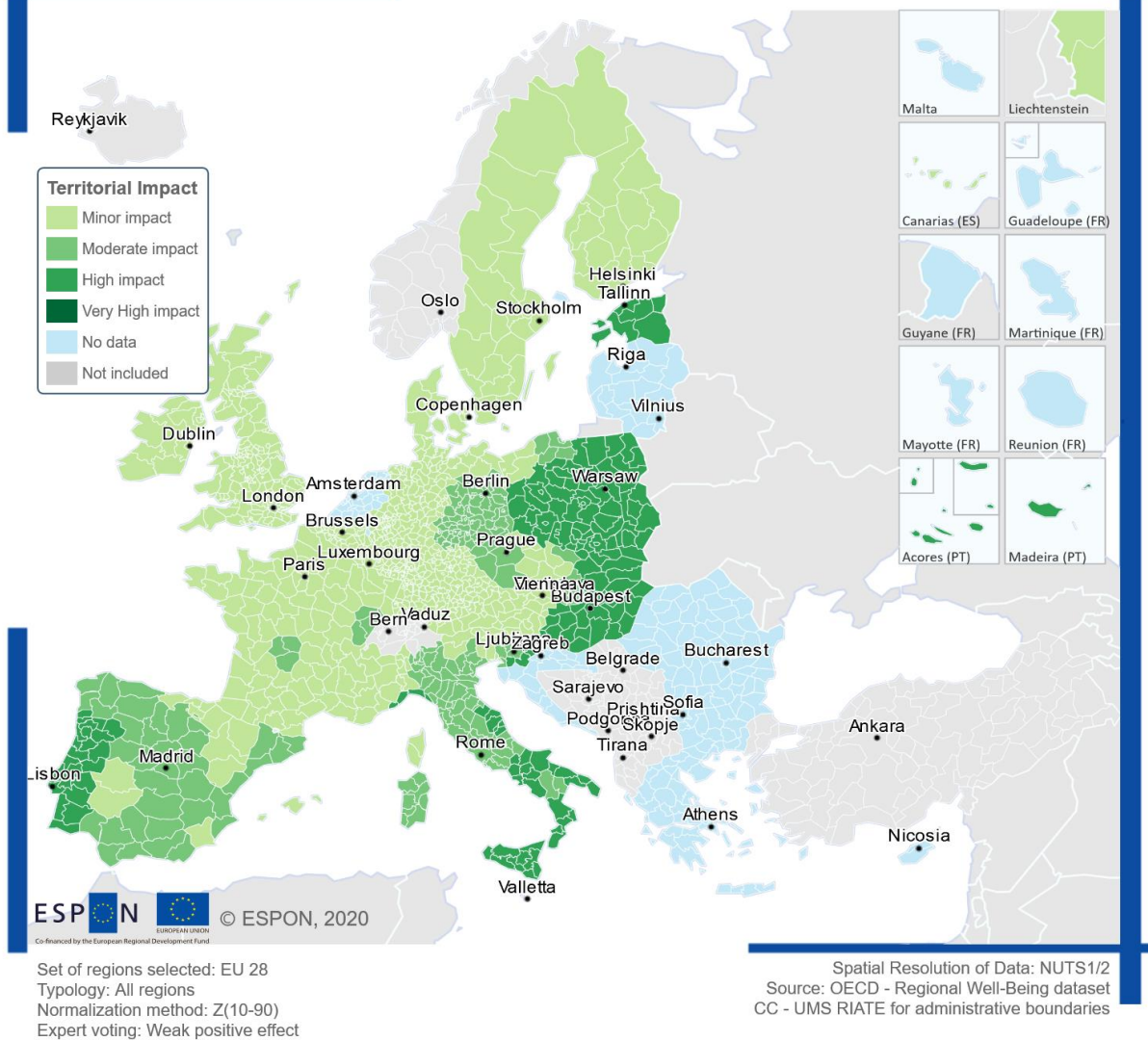


Source: Territorial impact assessment expert workshop, Brussels, 31 January 2020

Map 12 combines the expert assessment of a weak positive effect with the sensitivity of specific regions. A high impact is seen in 14% of the regions and a moderate impact in 17%. Regions with the highest impact are in Portugal, parts of Italy and Slovenia, Estonia, Poland, the Czech Republic, Slovakia, and Hungary. The majority of the regions (69%) see a minor impact.

¹⁰ Note that some data are missing, e.g. for Lithuania, Latvia, the Netherlands, Croatia, Romania, Bulgaria, and Greece.

Self-evaluation of life satisfaction



Source: Territorial impact assessment expert workshop, Brussels, 31 January 2020

¹¹ Note that some data are missing, e.g. for Lithuania, Latvia, the Netherlands, Croatia, Romania, Bulgaria, and Greece.

7 Conclusions and recommendations

7.1 Lacunae, statistical indicators, and geospatial data

Participants stressed that **there is a close relationship between health and biodiversity**. We need better data to establish the scientific robustness of this statement. The indicators available during the workshop were not deemed sufficient to demonstrate this link. Closeness to green areas, in particular, might need better analysis. An invaluable contribution here is the 2018 working paper by the European Commission [A Walk To The Park? Assessing Access to Green Areas in Europe's Cities](#), which describes a methodology for developing indicators on access to green urban areas for the populations of cities in Europe. Results are available for nearly all cities in the EU and EFTA countries, and are compared with more traditional indicators on the presence of green urban areas. The method is based on Copernicus Urban Atlas polygons for various urban centres or cities. The study determines an area of easy walking distance – around 10 minutes' walking time – around an inhabited Urban Atlas polygon and then calculates the median surface area of green areas than can be reached in this time (Map 13).

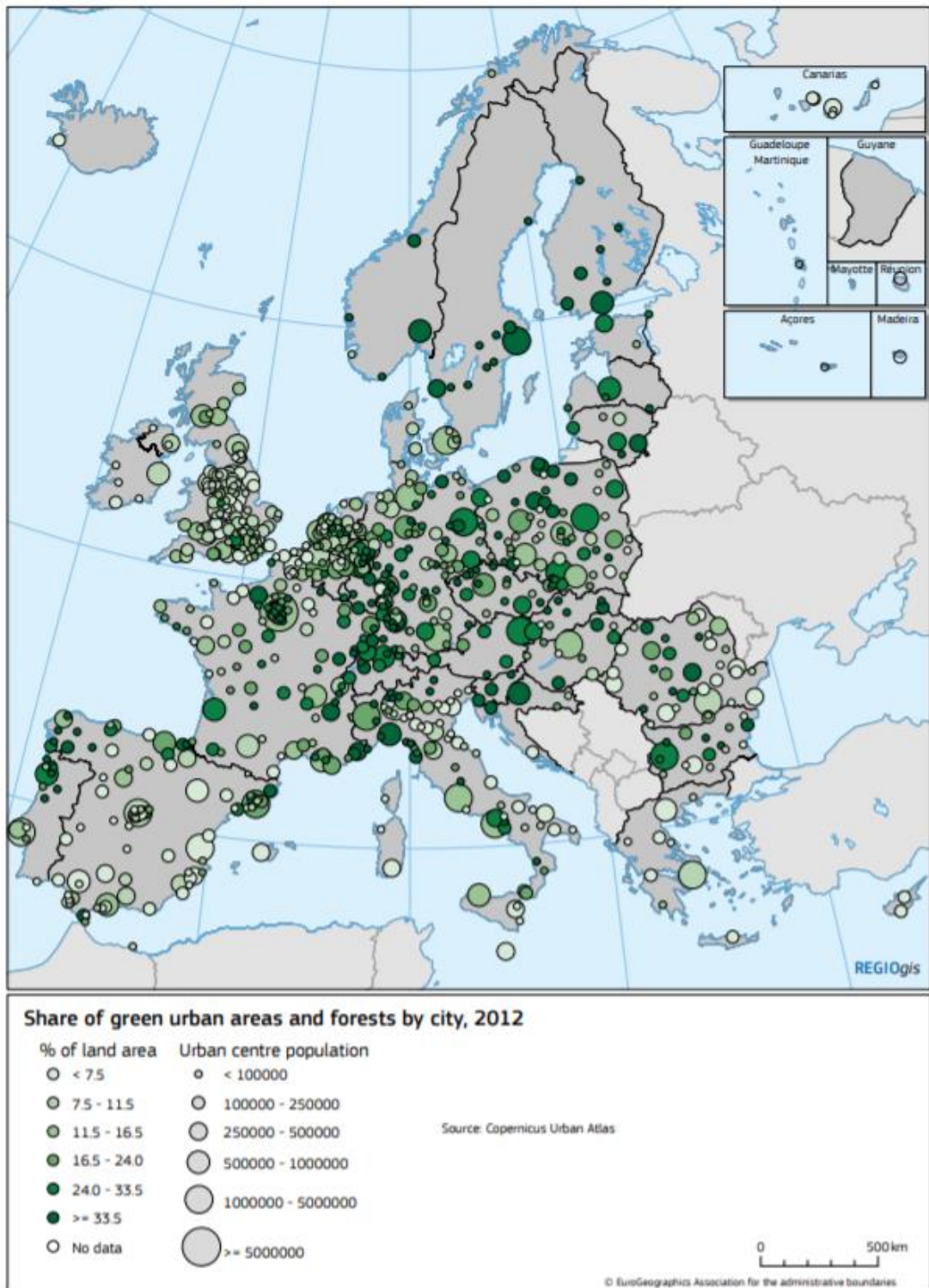
A technical aspect to be considered is the need to have grid-based data for biodiversity. Data based solely on administrative boundaries are necessarily poorer and less relevant. Studies like [An Assessment and Spatial Modelling of Agricultural Land Abandonment in Spain \(2015–2030\)](#) are thus welcome. That study is based on outputs from the LUISA Territorial modelling platform (Joint Research Centre of the European Commission) and focuses on regional and local future projections of land abandonment between 2015 and 2030 in Spain (taken as representative of countries highly affected by agricultural land abandonment in the European Union) (Map 14).

Finally, participants also mentioned measurement of the 'green economy'. For example, creating criteria for defining a 'green job' could identify such jobs' weight in the economy and in the labour market, providing more information to policy-makers.

A broader evaluation of the impact of implementing the biodiversity directives should consider EU policies on climate mitigation and adaptation and their close links with the directives.

Map 13

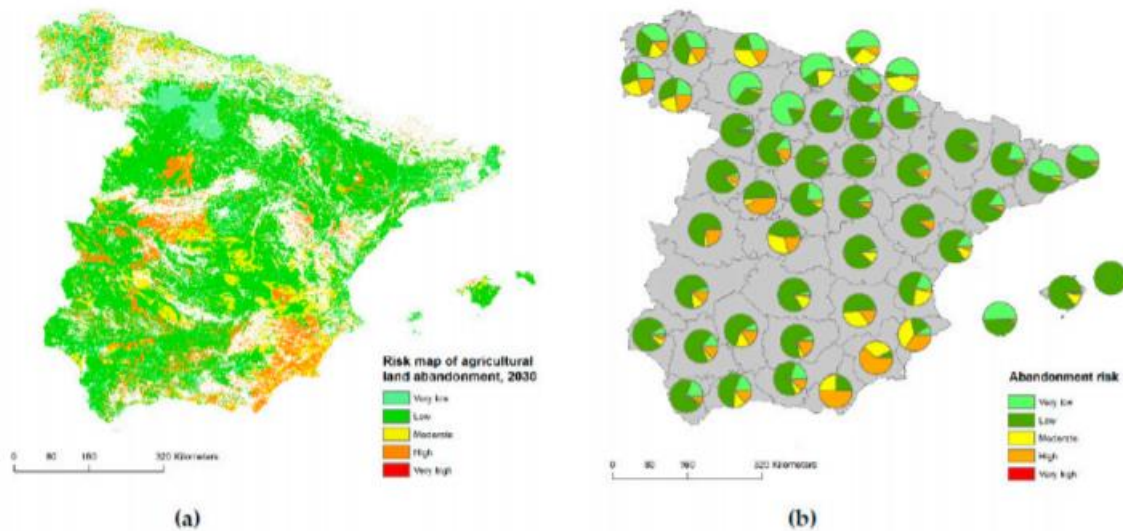
Share of green urban areas and forests in total land area, by city/greater city



From: *A Walk To The Park? Assessing Access to Green Areas in Europe's Cities*, DG REGIO, 2018

Map 14

Potential risk of agricultural land abandonment in 2030. (a) Grid level (100 m resolution);
(b) Province level (NUTS 3)



Source: "An Assessment and Spatial Modelling of Agricultural Land Abandonment in Spain (2015–2030)",
Sustainability, 2020, 12, 560

The European Earth Observation and Monitoring programme, Copernicus, also offers effective support in protecting biodiversity. The report *The Ever Growing Use Of Copernicus Across Europe's Regions*¹² describes dozens of applications of Copernicus by local and regional authorities to support the economy and the environment. Some 20 of these are directly related to biodiversity. The report notes (p. 107):

"Environmental protection is a core objective for Copernicus. The Programme provides data and information useful to monitor a variety of environmental parameters over land, the atmosphere and the oceans. For instance, dynamic maps of vegetation health and land cover can be derived from Sentinel-2 data with unprecedented frequency, whilst chlorophyll content estimations derived from the Sentinel-3 satellite can be related to the eutrophication of the marine environment. Copernicus Land and Marine Environment Monitoring Services provide extended sets of relevant geophysical parameters such as, for example, very high-resolution maps of Natura 2000 areas (derived from Copernicus Contributing Missions) and various key physical and biogeochemical ocean parameters like currents, temperature and chlorophyll."

7.2 Experts' policy recommendations

¹² https://www.copernicus.eu/sites/default/files/PUBLICATION_Copernicus4regions_2018.pdf.

Based on the preliminary debate and on testing of existing indicators, participants formulated a series of policy recommendations.

European Union environmental policy dates back to the 1970s, and with its extensive environmental legislation (about 500 directives, regulations and decisions) provides some of the world's highest environmental standards. The aim is to make the EU economy greener, protect nature, and safeguard the health and quality of life of EU citizens.

- The Habitats Directive, implemented through the Natura 2000 programme, is an example of such legislation. However, the environment can actually only be protected if these policies are properly implemented. Local and regional authorities are crucial players in environmental protection as they are often responsible for rule-making and investment. Local authorities may have monitoring, evaluation and reporting functions. Social and economic aspects must also be factored into any biodiversity strategy. A concept of ecology that excludes the human context will make any strategy in the field harder to implement.
- Participants in the workshop discussed the indicators available. The European Commission requires regional governments and Member States to update it on progress made with implementing biodiversity policies, and this reporting demands significant resources (financial and human). Regions with a high proportion of protected areas or biodiversity hot spots are especially affected by this. Consequently the budget for implementing measures locally ends up being used to pay for monitoring and reporting. Measures need to be implemented to promote cost-effectiveness, focusing on the main goal of reducing biodiversity loss.
- EU Cohesion Policy and related funding plays an important role in boosting the implementation of EU environmental standards and sustainable growth. The [European Green Deal](#) represents an opportunity to mainstream biodiversity.
- Biodiversity should be further integrated into spatial planning. In particular, the possibility should be considered of increasing the number of areas free from any human intervention – including unmanaged areas, where nature could evolve by itself.
- It is necessary to increase decision-makers' awareness of the interlinkages between biodiversity and other policy areas. Competing goals need to be addressed in order to deliver coherent policy-making. Instead of different measures being taken that address competing problems and then cancel each other out, a properly defined hierarchy of priorities would allow authorities to

simultaneously tackle environmental and socio-economic needs, along with the related demographic challenges and pressure on fiscal, health, and social security systems.

8 Contributions from previous TIA Exercises

8.1 Birds and Habitats Directives (Natura 2000)¹³

Given the involvement of different levels of government and different systems, experts would like the European Commission to provide a detailed overview of who is in charge of what at the EU level. They would also like to see more sharing of good practices among the Member States.

Local and regional authorities should improve spatial planning so as to properly integrate Natura 2000 sites and address problems reported in order to mitigate potential negative effects.

Member States and regions should involve the local and regional level more and make the implementation process more participatory. Some Member States and regions took a participatory approach right from the start and this has led to better implementation of the directives with wider public consensus. The Member States, regions and the European Commission should clearly define the rights and obligations of every stakeholder involved in the Natura 2000 network.

The Member States and regions should give private landowners increased access to funding. On the other hand, the application process for EU funding should be considerably simplified, as the current rules mean that an additional person has to be paid just to deal with the administrative requirements set by the Commission. This is not sustainable for many stakeholders. More funding should be available for tourism and education.

There are many sets of guidelines, sometimes several different ones for each Member State. This adds to confusion among site managers and local and regional authorities. Clear guidelines should be made available. There should be some flexibility for management plans, but procedures must be clearly defined.

Experts are not in favour of merging the directives, as this could lead to public opposition and create uncertainty again. It is not a good time to start changing the management phase: a better approach would be to fine-tune procedures (i.e. define who should be involved) instead of changing and merging

¹³ <https://cor.europa.eu/en/our-work/Documents/Territorial-impact-assessment/birds-and-habitats-directives.pdf> .

them. Clarification of certain aspects should be envisaged. Experts wish the REFIT process to be participatory, with broad consultation of stakeholders.

8.2 Implementation of the 2030 Agenda – influence of SDG 11.3 on urban development through spatial planning¹⁴

The experts thought that SDG 11.3 would have a broadly positive impact on the SEA (Strategic Environmental Assessment) Directive and on spatial planning. They identified the following effects:

- Land consumption could be reduced if spatial planning SEAs focus more on SDG 11.3 so as to make cities and human settlements inclusive, safe, resilient and sustainable. Urban regions with dynamic economic development and less strict planning regulations that currently face a high annual land take per inhabitant could see a particularly positive impact.
- With respect to the complex process of drafting and adopting urban plans, experts mentioned that a significant proportion of urban infrastructure is considered to require only minor modification, so that a new process of drafting and adopting impact assessment studies is not needed. EU rules are flexible enough to allow spatial planners to solve urban challenges effectively, but the impacts of these 'minor' modifications of the initial plans are not usually monitored. Such projects might have significant implications for an urban planning strategy, sustainable urban mobility plan or air quality improvement drive by the local authority. This might therefore ultimately be considered an obstacle to achieving SDG 11.3.
- As reduced consumption of built-up areas reduces pressure on green infrastructure, SDG 11.3 and its application in spatial planning would contribute to strengthening the green backbone of urban regions.
- Higher urban density and less urban sprawl will reduce traffic volume in urban regions. Higher settlement densities makes it possible to provide a more attractive public transport system. Both effects would reduce car transport volumes and increase public transport, which would improve air quality. In particular urban regions that currently have high traffic density would see positive impacts. Such regions are located e.g. in western Europe (the UK, Belgium, northern Germany and Paris), along the coast

¹⁴ <https://cor.europa.eu/en/our-work/Documents/Territorial-impact-assessment/tia-workshop-etc-post-2020.pdf>

(Mediterranean coast of Spain, Atlantic coast of northern Portugal), and in economically vibrant industrial areas (e.g. Germany's Ruhr region or northern Italy).

8.3 Bioeconomy¹⁵

Experts concluded that mainstreaming of the bioeconomy requires action from decision-makers at multiple levels, depending on the remits of European, national, regional and local authorities, but also, and crucially, on the value chains of each activity within the bioeconomy.

Specifically, economic symbiosis, as an economic ecosystem where the unused or residual resources of one company are used by another, results in mutual economic, social and environmental benefits and is vital for the bioeconomy. To that end, we need:

- the European Union to motivate regions to form biomass clusters in order to achieve economies of scale in human resources, research and development;
- the Member States to establish national strategies¹⁶ and to at least position themselves within the European market;
- the Member States to conduct a concerted policy embracing and prioritising the conflicting goals of sectors that create the bioeconomy: climate action, economy, growth, clean energy etc., as overly narrow policies tend to fail to deliver expected impacts;
- local and regional authorities to become active in linking their economic players to each other and to other European regions where they can achieve a symbiotic relationship, promoting innovative activities and new business models anchored in their local potential.

The creation of bio-hubs will enable better management of biomass supply and should be accompanied by measures to generate value-added at local level and so support biomass. Much of the potential for economic and employment growth in such regions will be lost if value is generated elsewhere (typically in areas that are already economically more dynamic).

¹⁵ <https://cor.europa.eu/en/events/Documents/COTER/20190401TIACoRBioeconomy.pdf>

¹⁶ The opinion of the Committee of the Regions on [A sustainable Bioeconomy for Europe: Strengthening the connection between economy, society and the environment](#) also encourages "all European regions, being one of the most appropriate territorial levels for the implementation of bioeconomy strategies, to adopt bioeconomy action plans by late 2024 or to provide for a chapter dedicated to the bioeconomy in their global development strategy."

Finally, to boost the market uptake of bio-based products, experts said that public procurement must necessarily be involved. Setting of specific targets for products that originate in the bioeconomy could help in providing a steady demand for certain products. This would be crucial to mitigating the short-term high costs of developing an innovative economic activity that will provide long-term benefits.

The bioeconomy is a potential domain for the Smart Specialisation Strategies (S3). Horizon 2020 or ERDF resources (such as the interregional innovation investments currently contained in the proposal for a regulation on European Territorial Cooperation) could be used to unleash the economic potential of many European regions that are rich in biomass but currently lack the financial or political support to use it productively.

8.4 Climate neutrality¹⁷

After analysing the indicators and their potential implications for regions across the European Union, the workshop participants discussed the main policy implications to be addressed. These could be grouped under four broad headings: support for economically more fragile regions; further decision-making supported by both more civic involvement and evidence; an integrated European energy policy making it possible to tackle this global problem on a continental scale; and finally the need to provide appropriate financing instruments for a climate-neutral economy.

1. It transpired from most of the indicators analysed that poorer and/or more peripheral regions (mostly in the southern and eastern parts of the European Union) had the most adjustments to make and would consequently need additional support. This was in line with the second policy objective of Cohesion Policy for the period 2021-2027, namely a greener, carbon-free Europe (implementing the Paris Agreement and investing in energy transition, renewables and the fight against climate change). Guaranteeing that country reports after 2020 include chapters on the environment and a funding approach that recognises a long-term strategy on climate transition were crucial elements for the success of the European climate change strategy.

2. Further work must be done to assess both the social and the regional consequences of the transition to a climate-neutral economy, with mapping of the most relevant vulnerabilities being an important tool for policy support. This went hand in hand with a more participatory process in designing public policies in the field of climate change, and provision of more information to the general public. The experts agreed that political support and life-style changes followed on from an understanding of

¹⁷ <https://cor.europa.eu/en/events/Documents/COTER/20190405TIACoRClimateNeutrality.pdf> .

the holistic nature of climate neutrality and of the benefits that it would bring in terms of water and air quality, urban traffic and better housing conditions, and consequently human health and well-being.

3. Further EU regulation was needed to reduce energy demand (especially from fossil fuel sources), both by increasing energy efficiency and by stepping up the production of renewable energy. The creation of a European energy market was identified as a potential solution. This would allow a healthy energy mix that would deliver greater stability in energy supply, with positive spillover effects on European security through less energy dependency on non-EU countries. Since a continental market of this kind would allow specialisation in those energy resources where each region had better competitive advantages, it would also present a chance for poorer and rural regions to find new economic opportunities and generate jobs within the green economy. Re-skilling of the workforce needed to be addressed if this potential was to be exploited to the full.