Conférence Européenne
des Directeurs des Routes

Conference of European
Directors of Roads

Practice of Soil Protection in Road Projects in European Countries

Results of Document Analysis, Expert Survey and Workshops

Tim Geiges and Silvia Tobias

Deliverables 4.1/4.2 & 5.1/5.2

Assessment methodologies and mitigation measures for the impacts of road projects on soils – ROADSOIL

Comprehensive Literature and Best-practice Review for Avoiding, Mitigating and Compensating for Impacts on Soil

Deliverable D4.1,4.2, Version 2.1
26 January 2022

Norwegian Institute for Bioeconomy Research NIBIO
Swiss Federal Institute for Forest, Snow and Landscape Research WSL
Swedish University for Agricultural Sciences SLU

CEDR Call 2019: Soils

Assessment methodologies and mitigation measures for the impacts of road projects on soils – ROADSOIL

Expert survey and workshop on best practices for soil protection

Deliverable D5.1/5.2
27. October 2022

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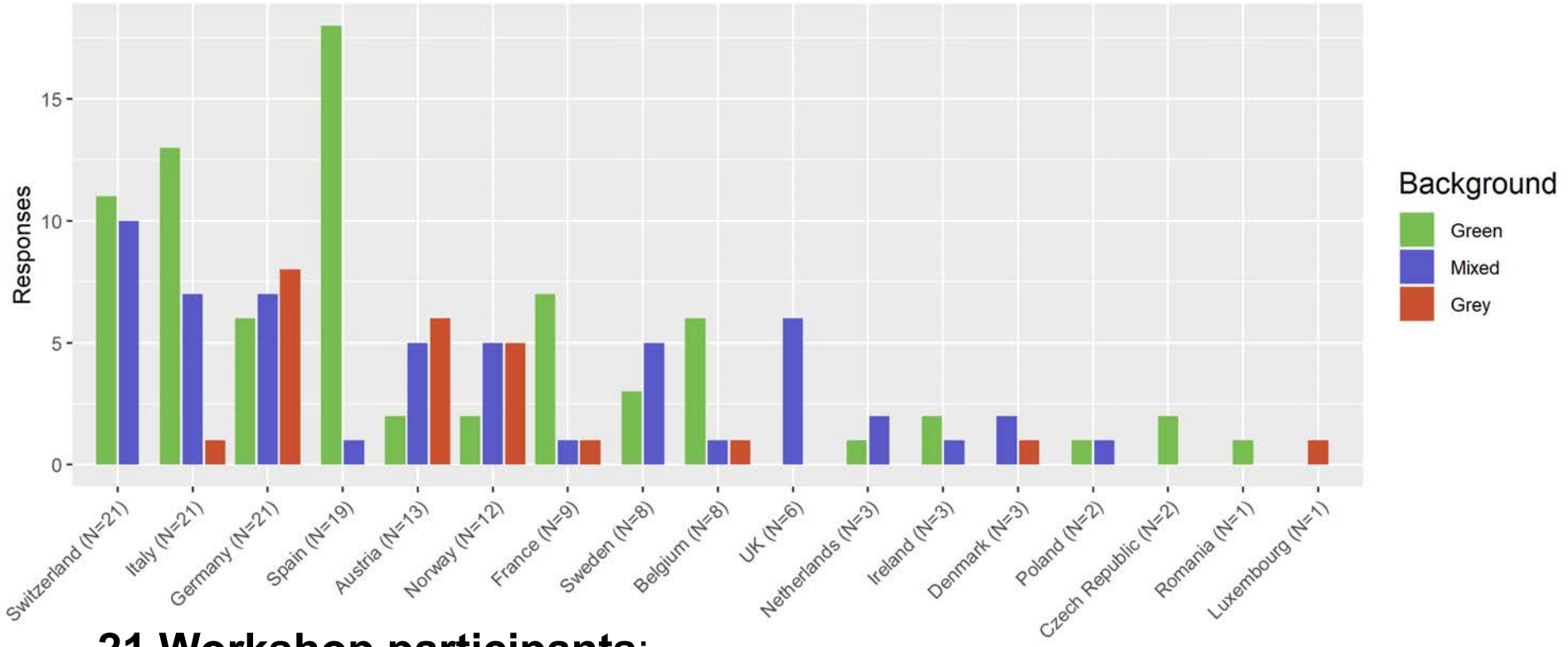
CEDR Call 2019: Soils

Objectives and methods

- Explore existing guidelines, soil information, best practice examples of soil protection in road projects in European countries
  → *Document analysis, expert interviews*
- Assess state of implementation of guidelines and soil protection measures in road projects
  → *Expert survey*
- Identify obstacles for implementing soil protection measures and outline solutions
  → *Expert workshops (online)*

Participants in survey and workshops

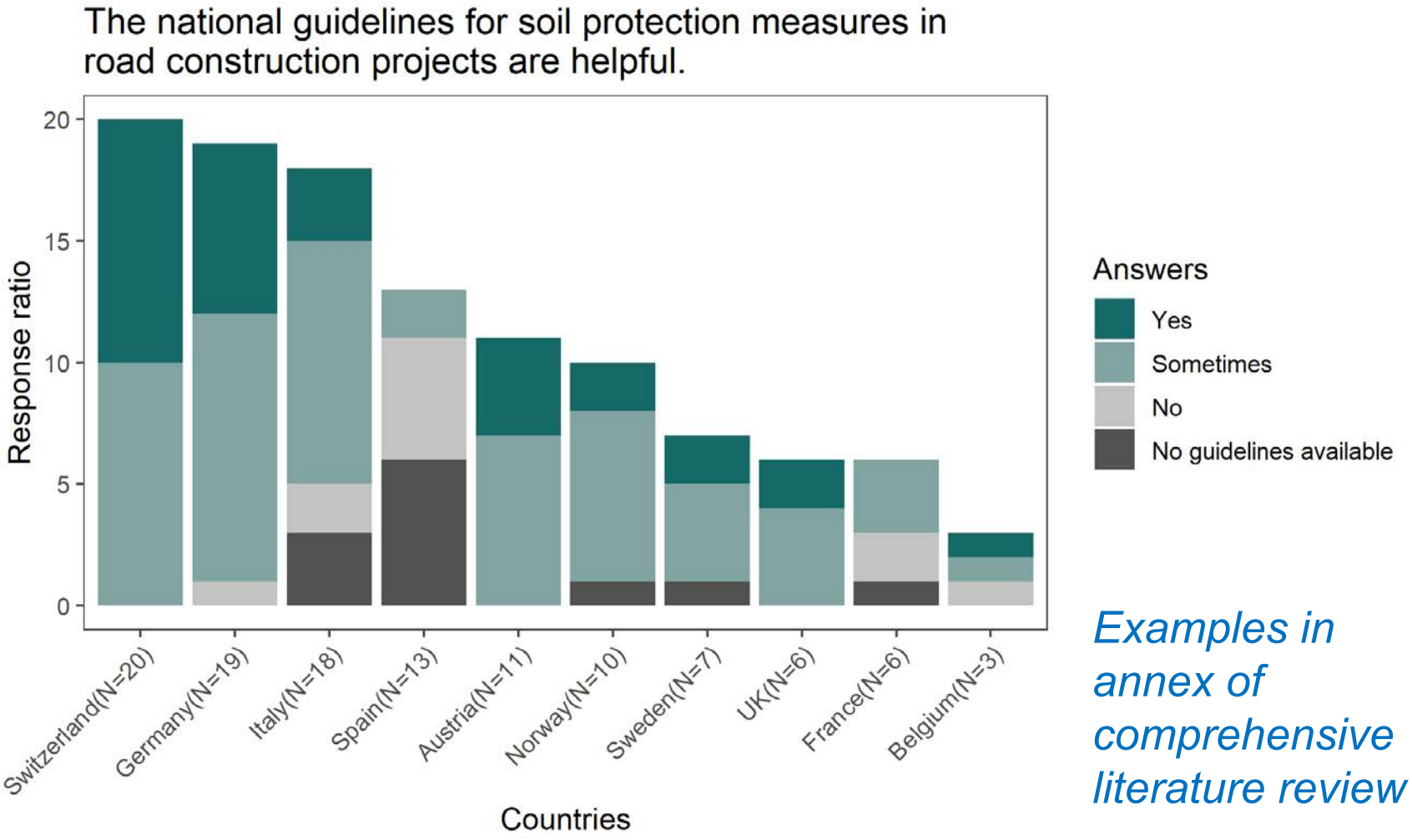
Survey participants (156 completed questionnaires):



21 Workshop participants:

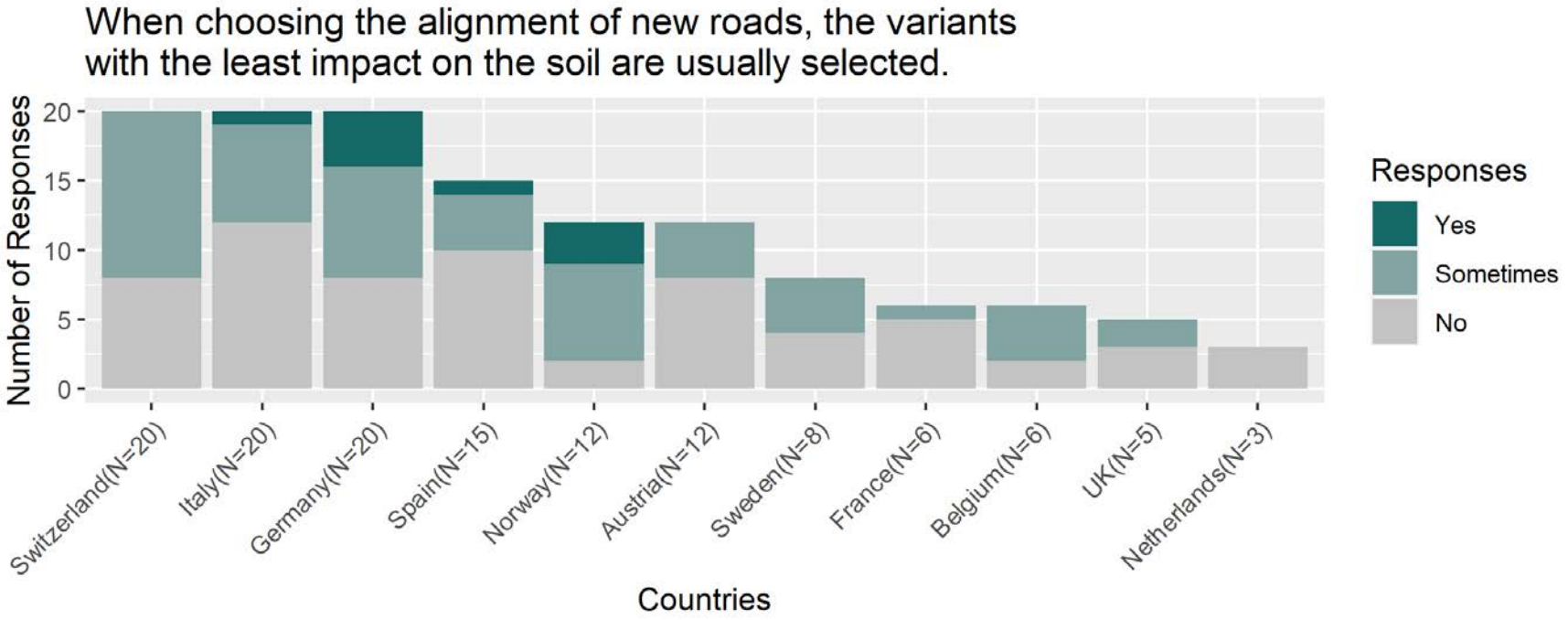
6 Switzerland; 4 Norway; 3 Germany; 2 Sweden; 2 Ireland;
1 The Netherlands; 1 Denmark; 1 Austria; 1 UK

Guidelines for soil protection in road construction



Examples in annex of comprehensive literature review

Soil information for road planning?



Sources of *soil information*:

- Soil maps (resolution, content, area, land-uses?)
- Spatial planning requirements (natural habitats, agricultural land, forest)
- Soil data bases (physical, chemical properties; pollution)

Measures to reduce soil sealing

- Digital technology can help reducing soil sealing for roads
- Only few examples in European countries

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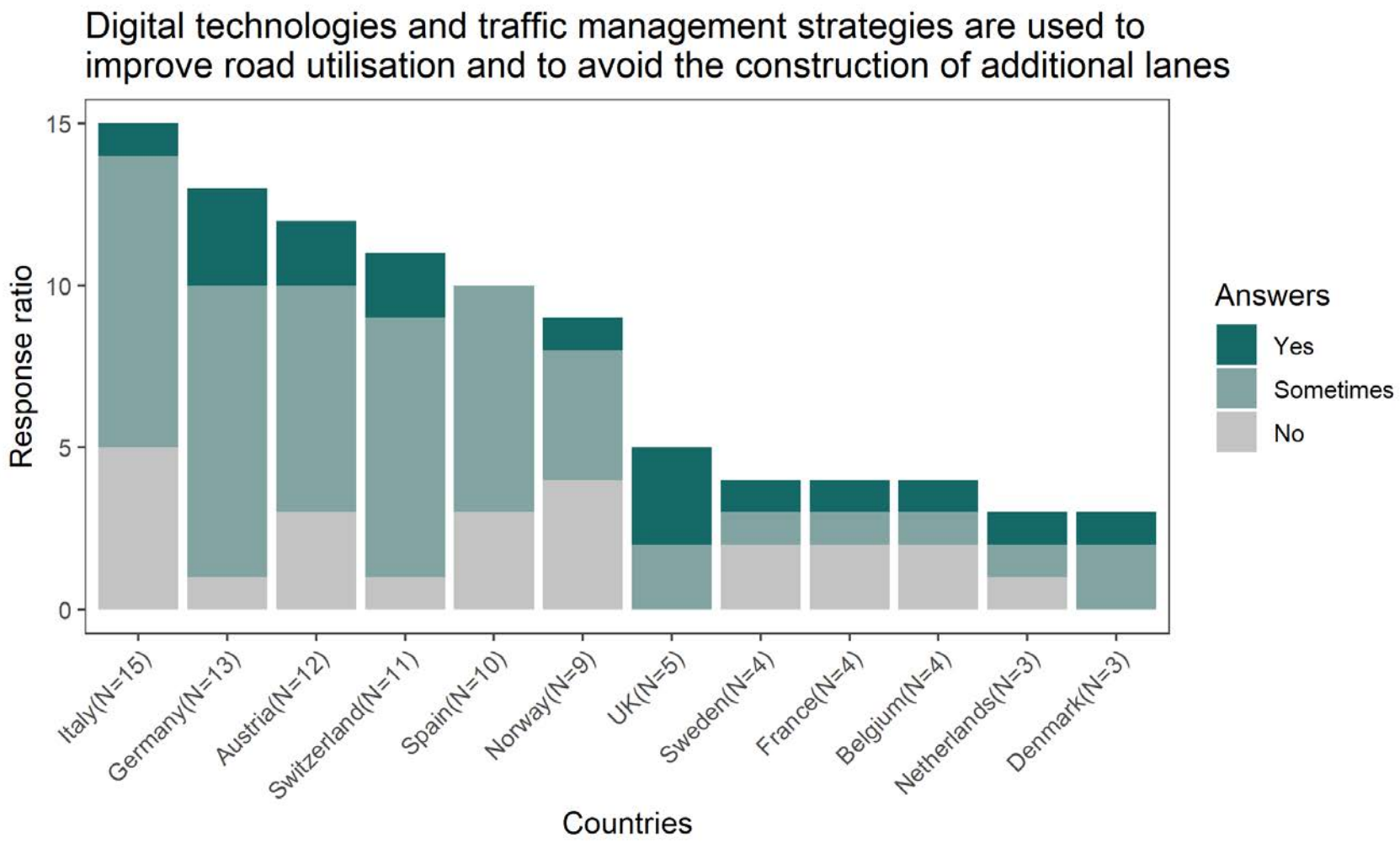
Traffic management to avoid soil sealing



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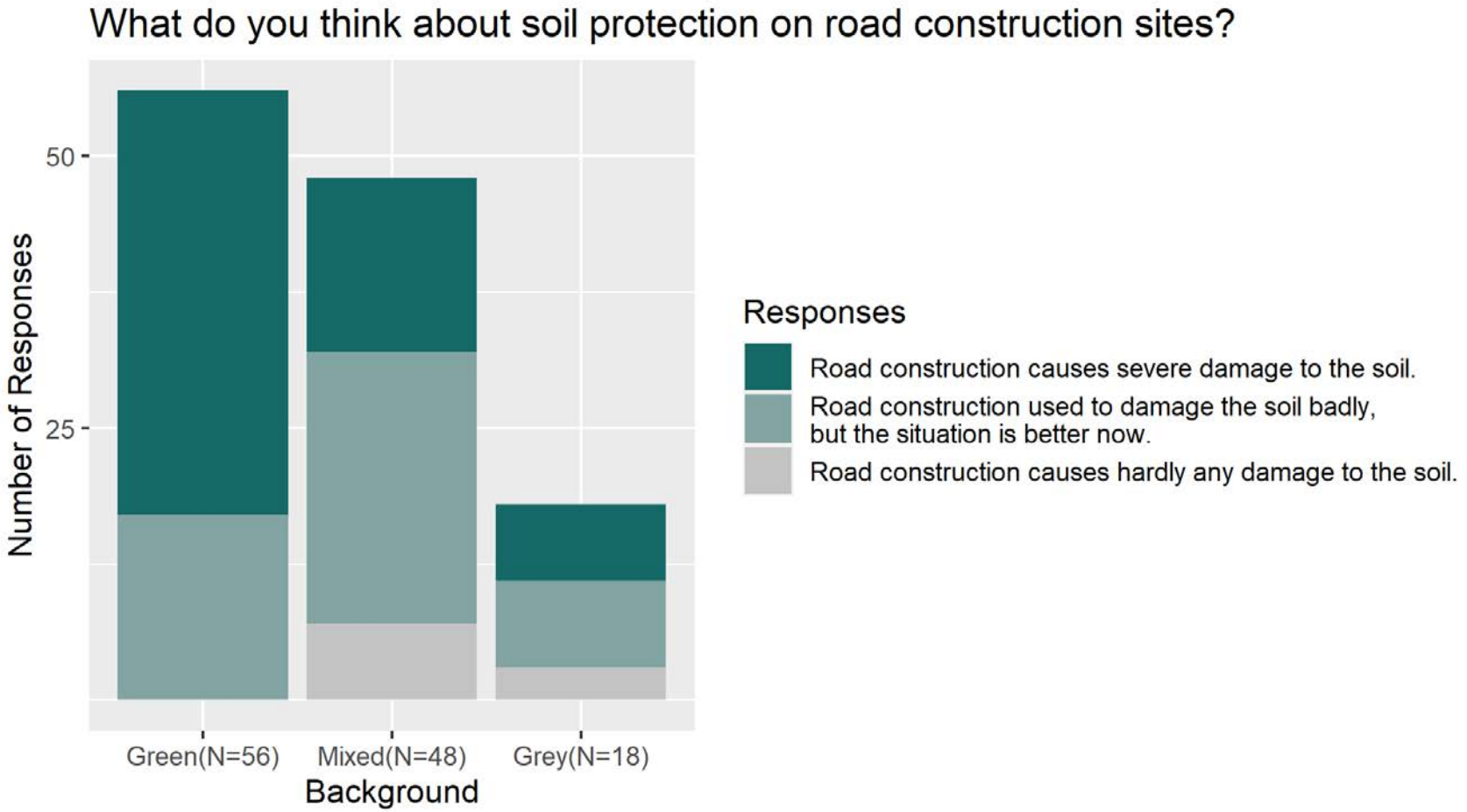
Impact of road construction on soil



Answers of environmental/soil experts ("green") and road/engineering experts ("grey")

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Success factors of soil protection

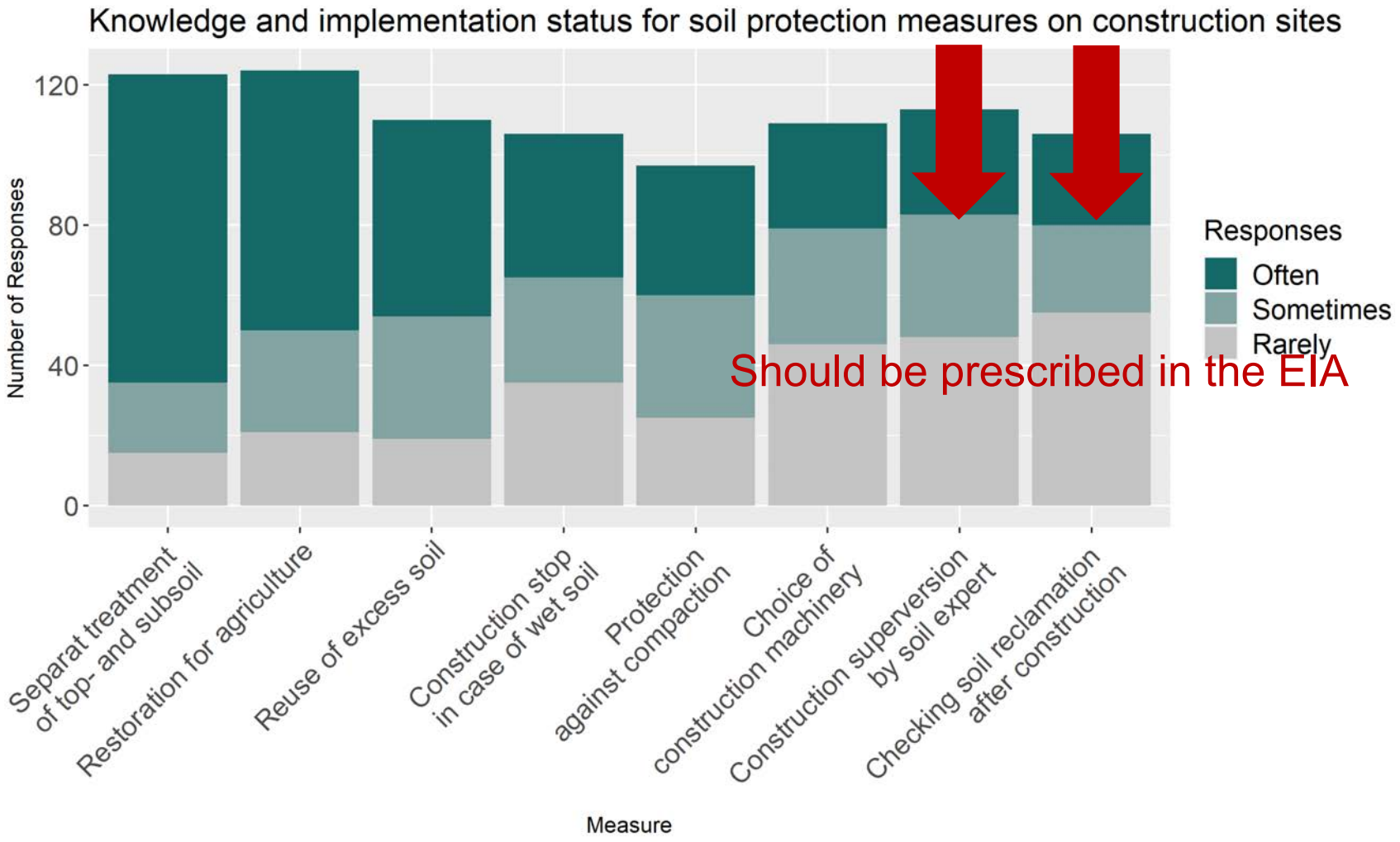
Main reasons for damage on soil

- *Lack of knowledge* among earthwork staff
- *No incentives* for correct soil handling
- *Lack of communication* between road and soil experts
- *Lack of penalties* for improper soil handling
- *Practical obstacles* (time pressure, lack of space)

Key triggers for improved soil handling

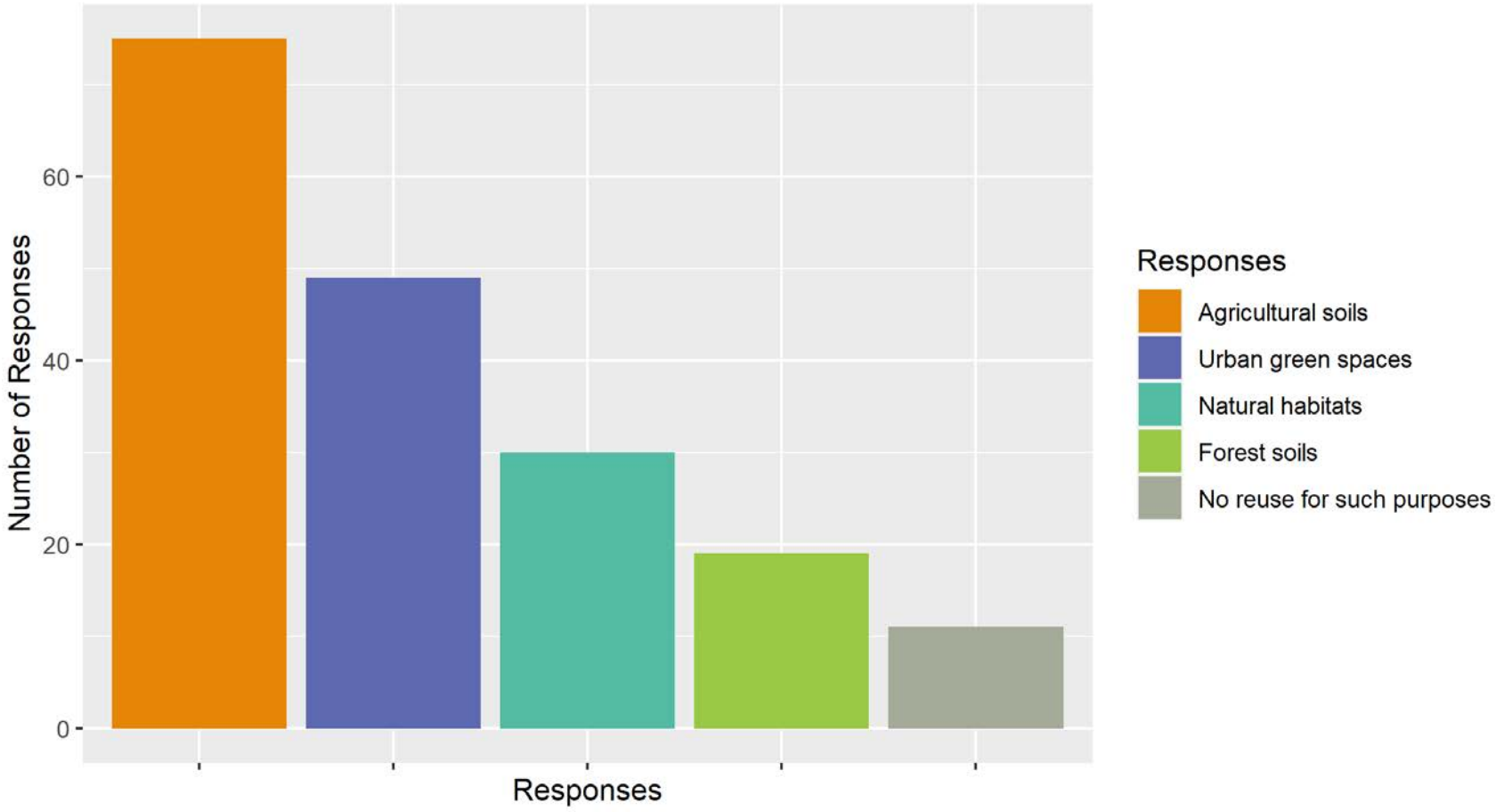
- *Information, training* of earthwork staff
- New *guidelines* for soil protection on construction sites
- *Soil experts* supervising construction sites
- New *legislation* at national level

Implementation of soil protection measures



Reuse of surplus soil

Surplus soil or bedrock material from road construction sites is reused to improve or restore:



Enhance the reuse of surplus soil

Obstacles of reusing surplus soil

- *Conflicts* with other *legislation* (e.g. waste)
- *No incentives* or obligation
- *Mismatch* of and *lack of information* about supply and demand

Solutions from expert workshops

- National policies should change to *circular economy*
- *Soil banks / trading platforms* for matching supply and demand
- Maps of *potential areas for upgrading* and restoration in case of oversupply

Conclusions (1)

- Availability and use of *guidelines and soil information* is heterogeneous among countries
- Road *planning phase* and *EIA* process are decisive for soil protection in road projects
- Road planning phase: *soil information* and measures to *avoid soil sealing* are hardly included
- Digital technologies and traffic management strategies can help *avoiding new soil sealing*
- Road construction phase: *damage on soil* has been reduced in some countries

Conclusions (2)

- *Soil experts* on construction sites and *information and training* of construction staff are keys for soil protection on road construction sites
- Few *soil protection measures* are regularly implemented on road construction sites; *final soil quality check* is usually missing
- Management of *surplus soil* faces legal and practical obstacles in some countries
- *Awareness* of soil as a resources should be raised among *politicians*

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Thank you for your attention!