Raum E0.42, 11:30-12:45

Grand challenges

Benedikt Fecher (Chair)

Maria de Kleijn

Apollonia Miola

Grand challenges

Benedikt Fecher (Chair)

Head of the research programme "Knowledge and Society",
HIIG, Germany

Grand challenges

Maria de Kleijn

Senior Vice President analytical services,
Elsevier, The Netherlands

Integrating grand challenges in an institutional research strategy

June 2019, Maria de Kleijn
SVP Analytical Services

Evolving expectations! From….

"I was entered at Oxford and have been properly idle ever since."

Edward Ferrars
in: Sense and Sensibility
(Jane Austen, 1811)

… To:

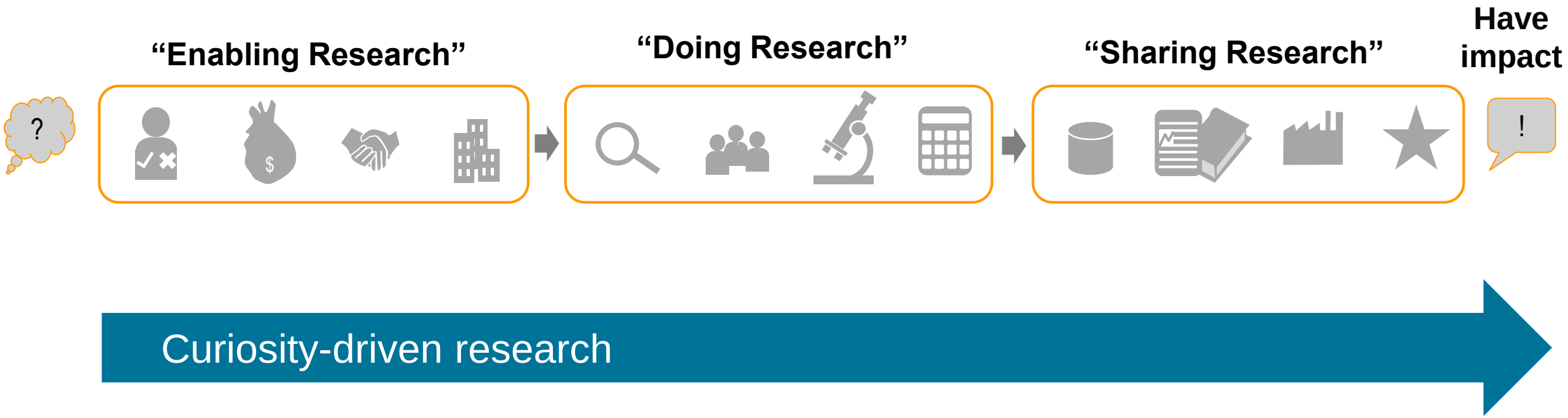
"To respond to the Grand Challenges, business, academia, civil society and government must work together, bringing their expertise and entrepreneurial spirit, to drive us all towards success. "

UK industrial strategy 2018

"A primary objective of the National Science and Technology Council is to ensure science and technology policy decisions and programs are consistent with the President's stated goals. "

Executive Office of the President of the United States, 2019

Match with the research workflow?



We organize research by discipline

Delft University of Technology

TU Delft

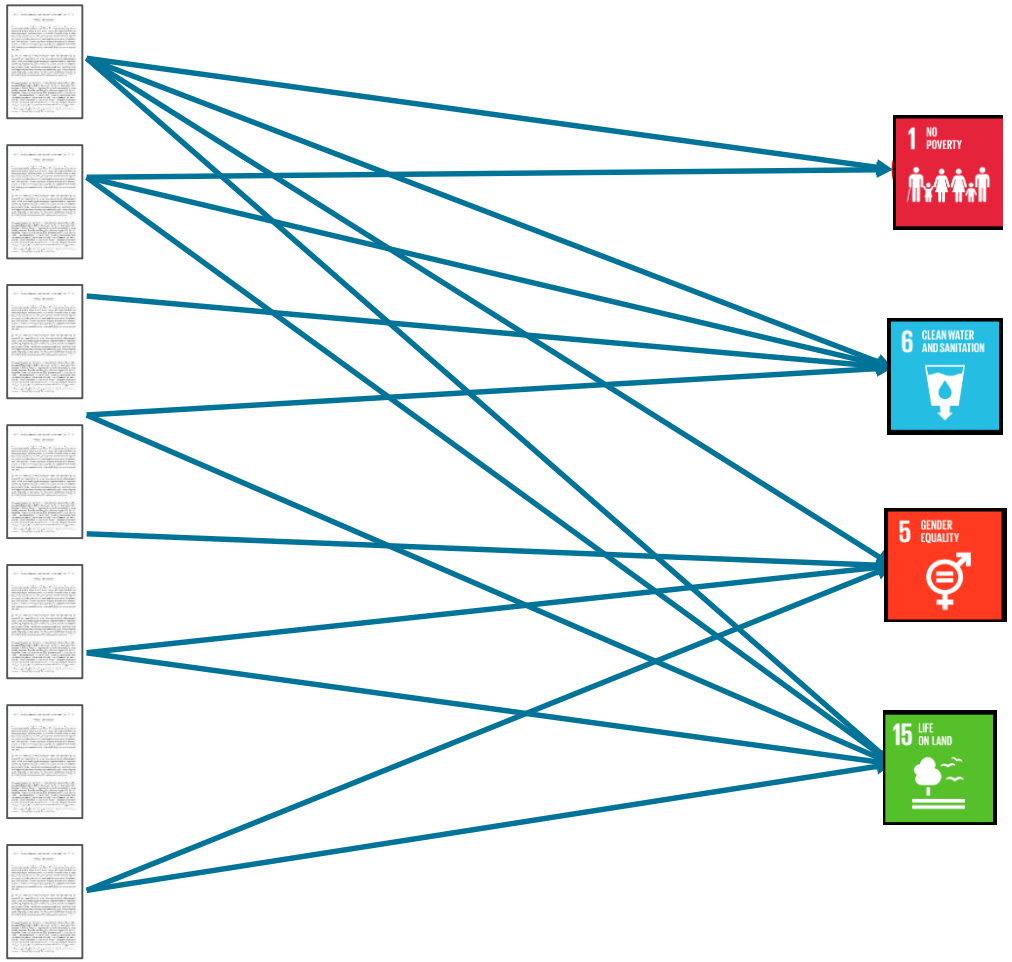
Faculties and disciplines

Thematic cooperation

Research Facilities

Sustainable Development Goals: missions

Linking research to missions



Research outputs

SDG missions

The SDGs: targets on impact

Have impact

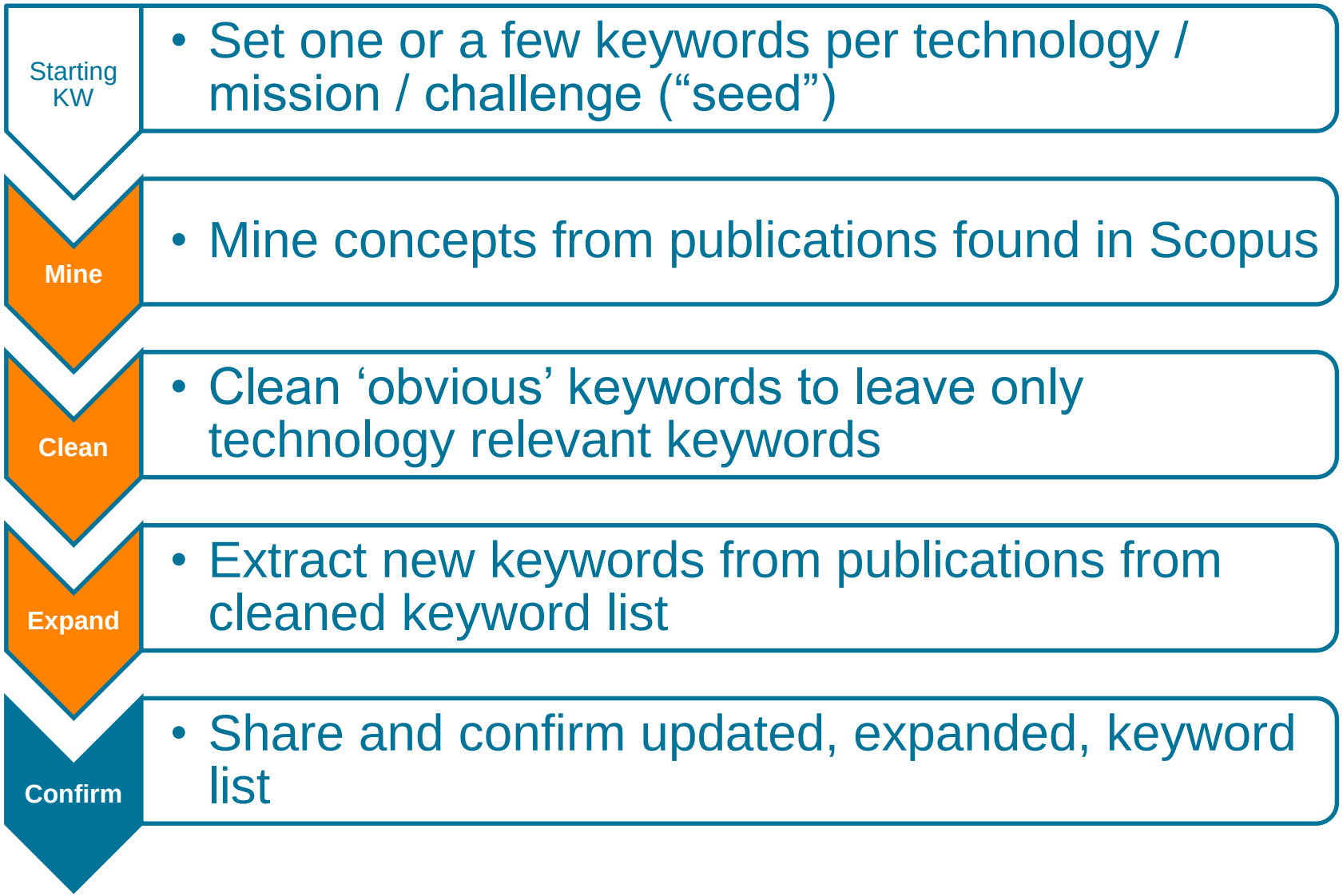
!

- By 2030, reduce the gl Maternal mortality s than 70 per 100,000 live births
- By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births
- By 2030, end the epidemics of AID and combat hepatitis, water-borne Neglected tropical diseases ses
- By 2030, reduce by one third prema nmunicable diseases through prevention and treatment a Mental health and well-being
- Stren Substance abuse t of substance abuse, including narcotic drug abuse and harmful use of alcohol

Distinct diseases

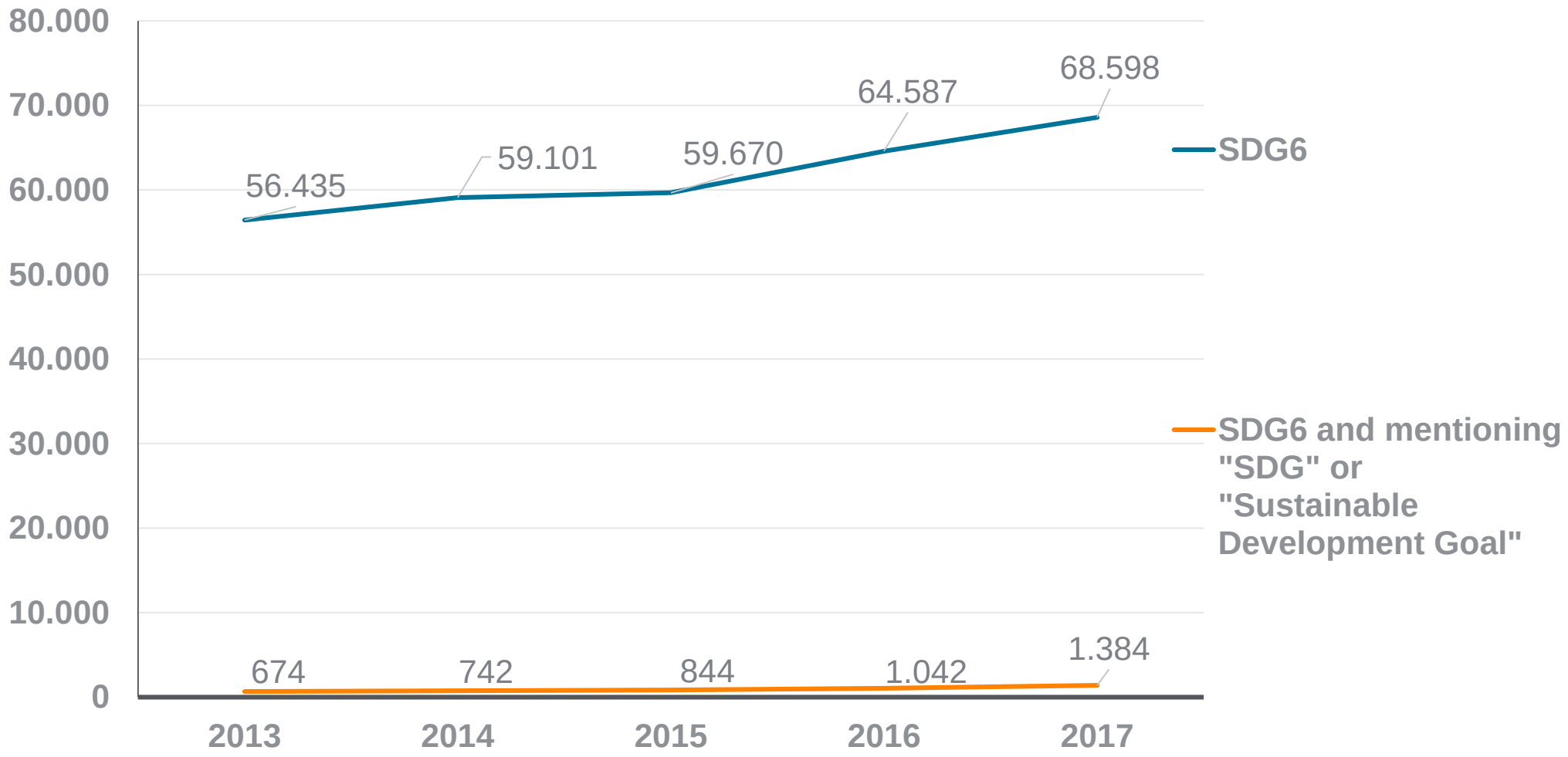
Mix of medicine, social science, economics,…

How to solve: computer assisted keyword definition



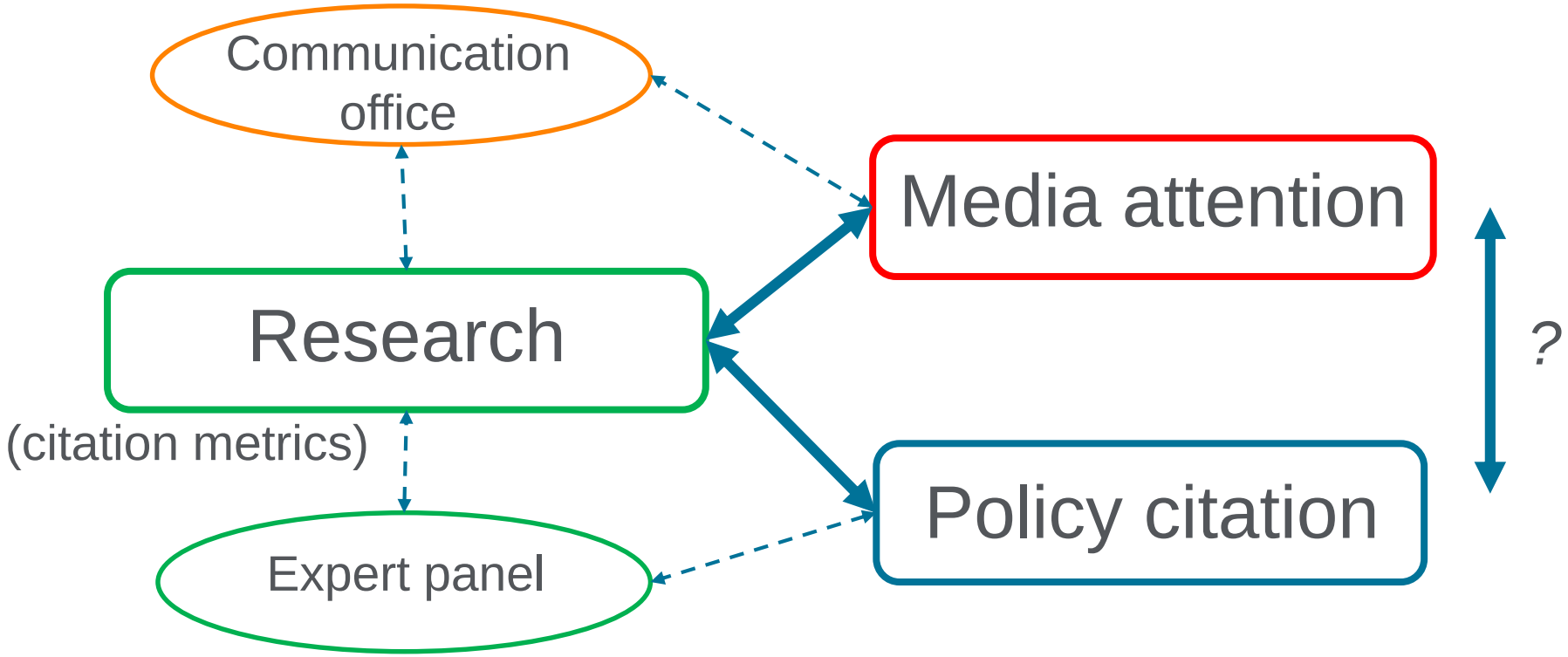
Hence, no issue that most SDG-relevant research does not mention the SDGs

Number of documents. Example SDG6 clean water, world



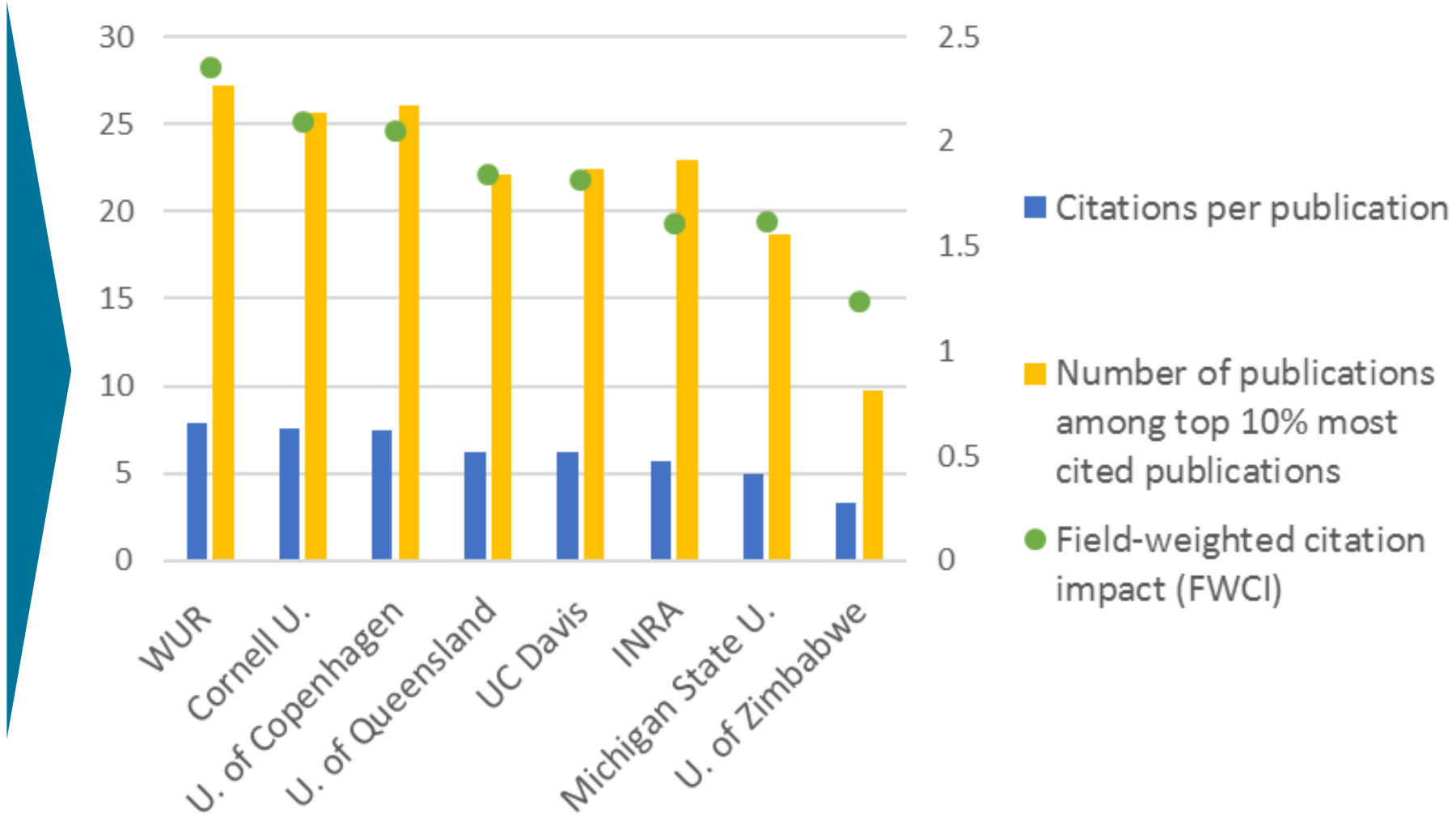
From research to impact? Wageningen case study, SDG2

- Does scientific quality translate into uptake by news media and social media?
- Do relative scientific quality, media attention or social media attention increase the likelihood of being picked up by a policy document?



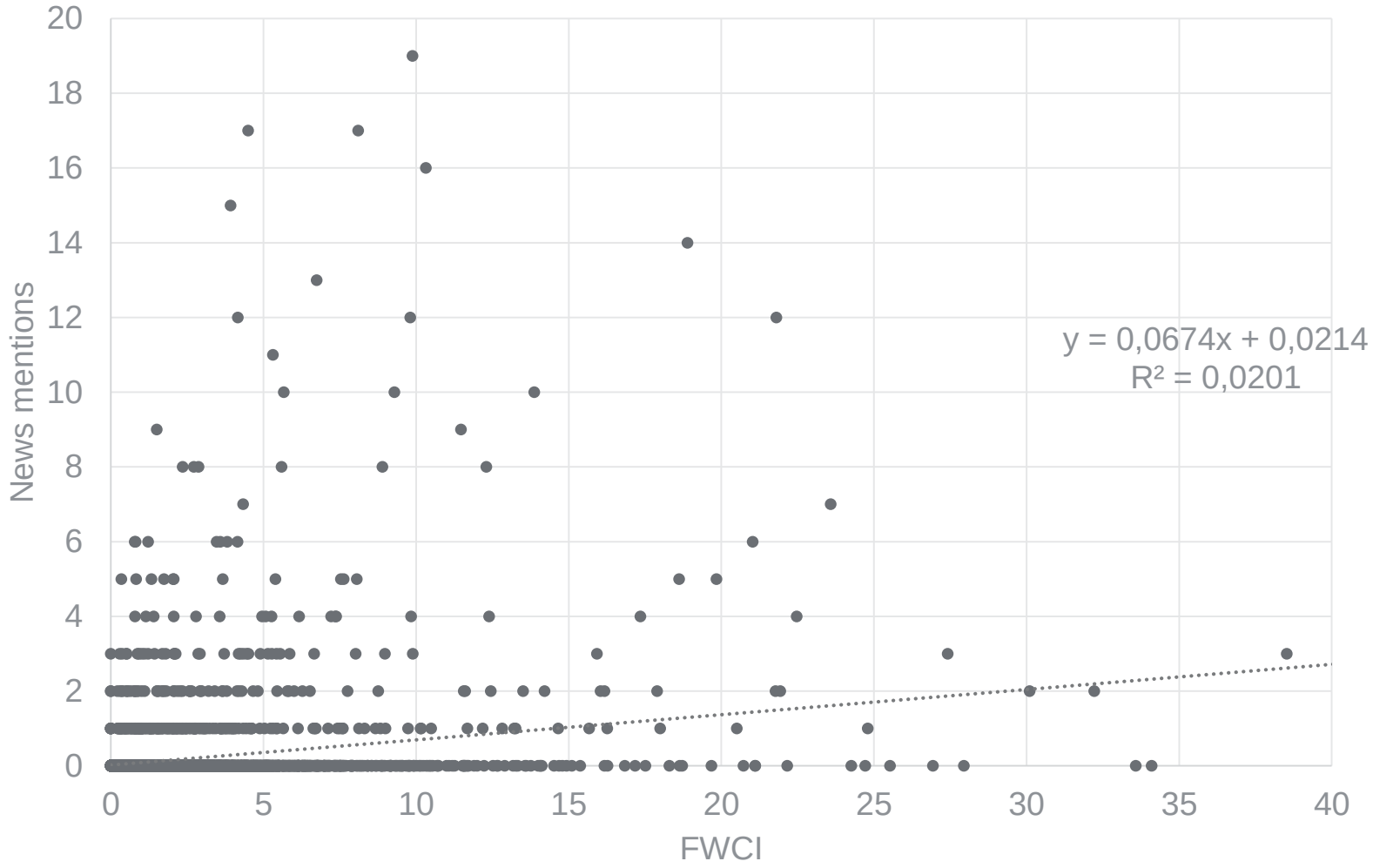
From research to impact? Wageningen case study, SDG2

- SDG2 publication set extracted based on fingerprinted keywords
- Based on document set, relevant comparator institutions selected



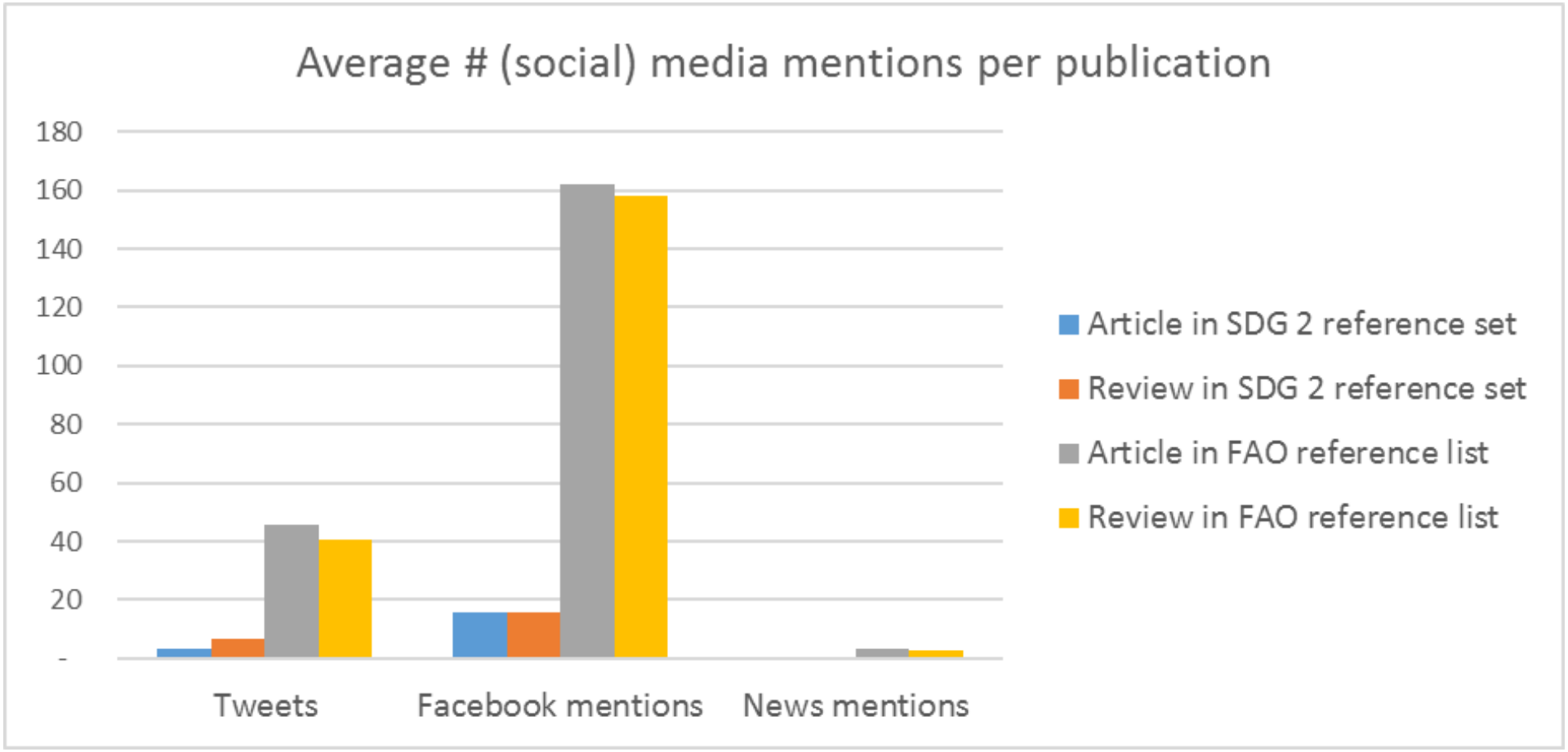
Wageningen SDG2: no correlation between research quality indicators and media success

Example correlation between FWCI and news mentions



Wageningen SDG2: policy documents seem to cite research that's attracted attention

Example SDG2, comparison on/off FAO reference list



Conclusion

- University research is increasingly expected to explicitly drive forward national or global policy objectives
- While research often not organised around these objectives, it is possible to link research outputs to missions ex post
- Analyses based on this linked data can help universities finetune research and impact agenda
- Showcasing impact to the general public seems to be a separate effort, not correlated to scientific success as measured by citations
- While policy seems to cite attention-grabbing research, policy impact may require concerted effort
- Elsevier will continue its effort to provide universities insight into the SDGs

A parting thought…

Thank you

Grand challenges

Apollonia Miola

Knowledge for Sustainable Development
& Food Security Unit, EC Joint Research Centre, Italy

The European Commission's science and knowledge service

Joint Research Centre

Science policy interface framework for SDGs implementation

A. Miola- European Commission - Joint research Center

IMPACT OF SCIENCE CONFERENCE

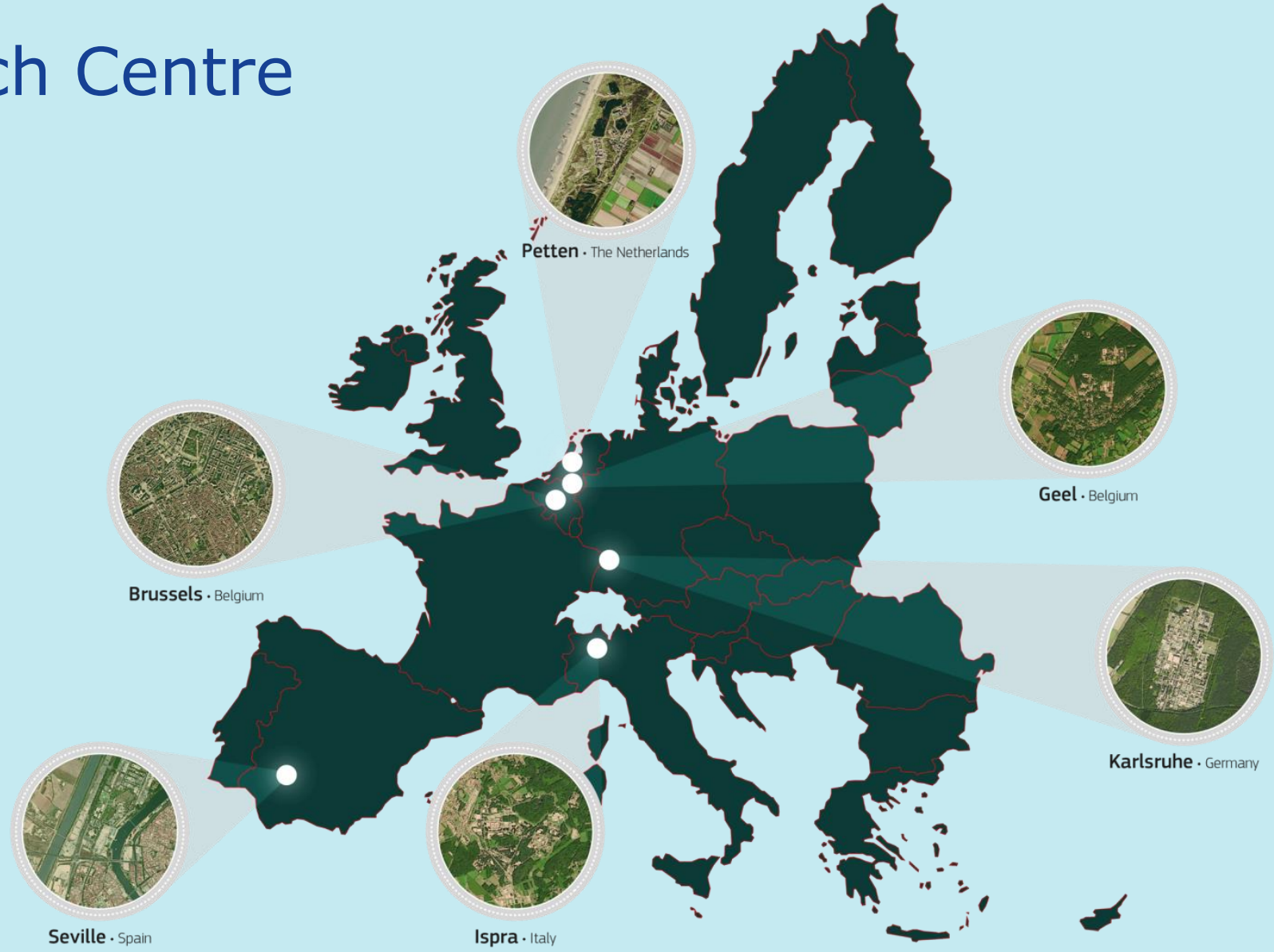
Grand challenges – session

5– 7 June 2019 - Berlin

The Joint Research Centre at a glance

3000 staff

Almost 75% are scientists and researchers.
Headquarters in Brussels and research facilities located in 5 Member States.



UN SDGs: International context

On 1 January 2016, the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development officially came into force

How to build evidence-informed sustainability paths?

"The world is in a flux. Everything is changing for everyone.

The question is whether we are a victim of change, or whether we will embrace and guide it.

To face complex challenges, we need to gear all our science, our financing, taxation, and our governance towards the achievement of the SDGs."

Reflection Paper on "A more sustainable Europe by 2030", 30 January 2019

European Commission

English EN

Search

European Commission > Strategy > International strategies > Global topics >

Sustainable Development Goals

EU approach to sustainable development

The EU approach towards implementing the UN's 2030 Agenda for Sustainable Development together with its member countries.

Multi-stakeholder platform on SDGs

Role, structure and working methods

Members

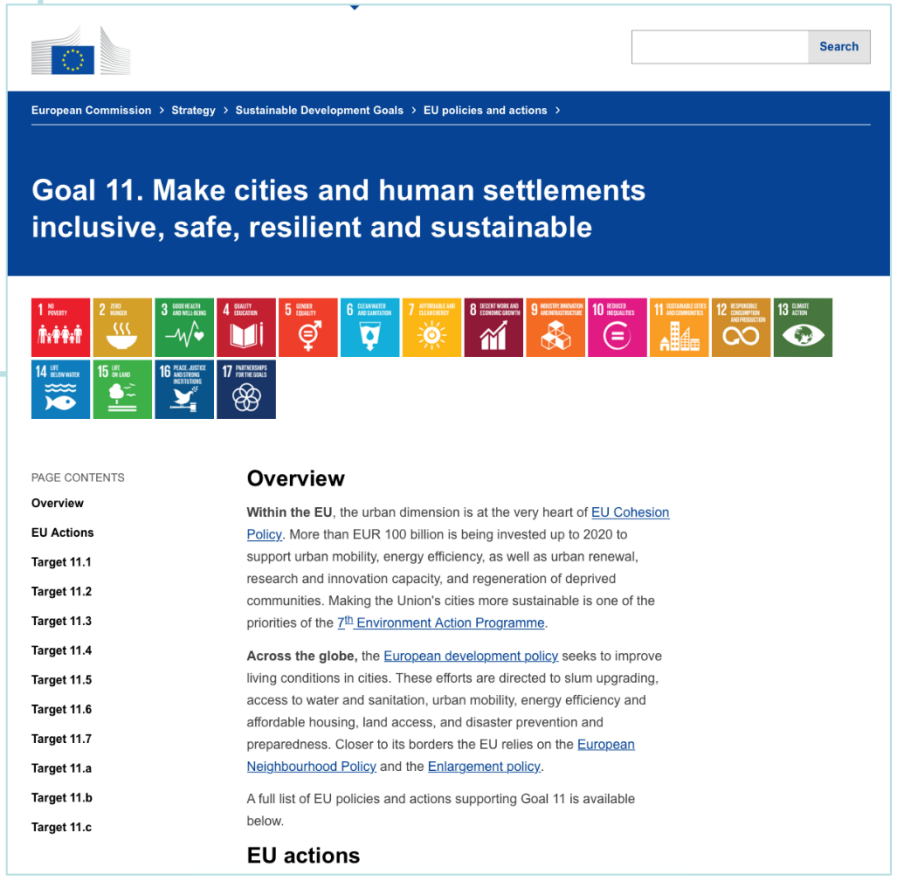
Meetings

Feedback on the implementation of the Sustainable Development Goals in the EU

Support and Advise

EU policies and actions

EU policies and actions contributing to the Sustainable Development Goals.



Statistics to monitor the SDGs in an EU context

The Eurostat website contains a section dedicated to sustainable development where you will find the monitoring report on progress towards the SDGs in an EU context, detailed information on each SDG, visualisation tools as well as direct access to the data.

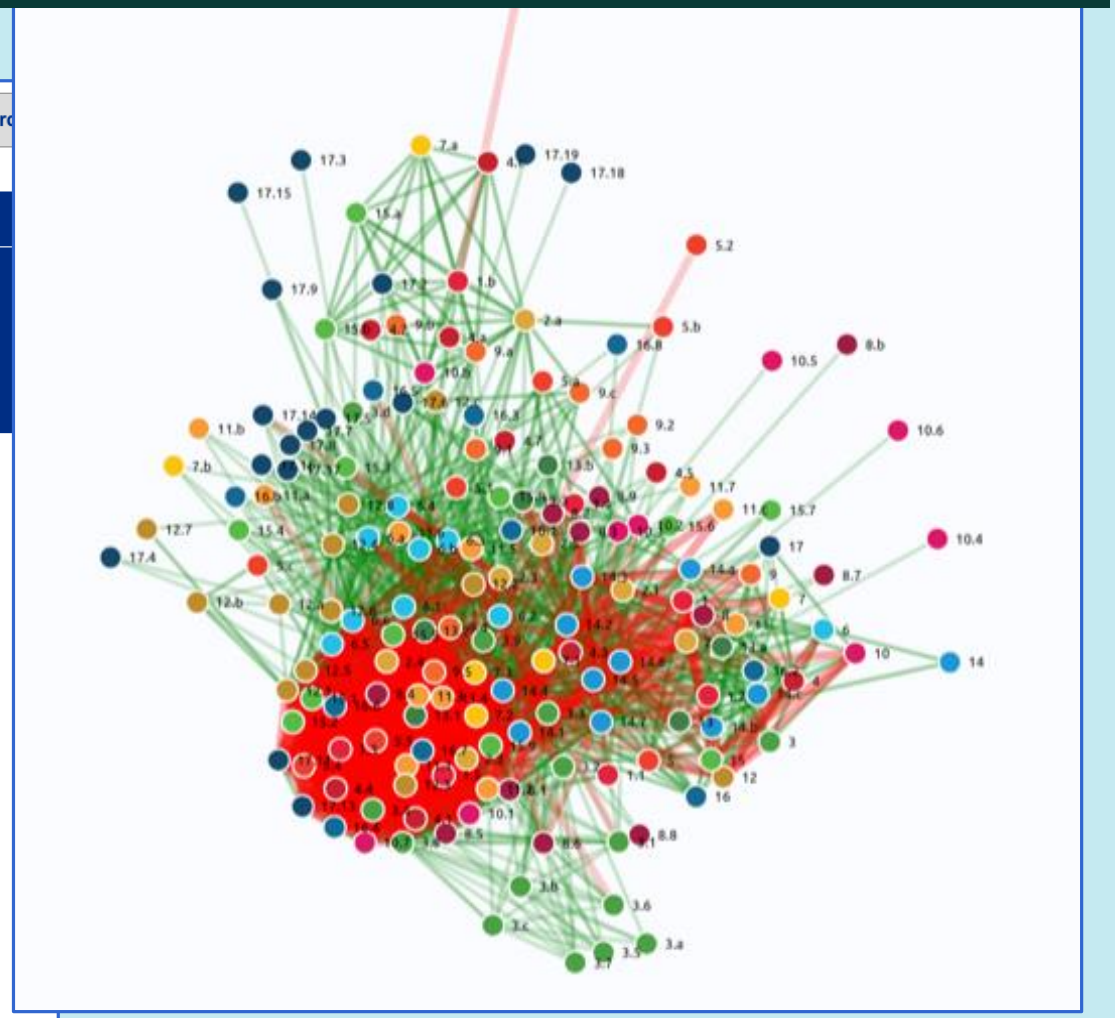
SDGs: a 'wicked' policy challenge

European Commission › Strategy › Sustainable Development Goals ›

EU policies and actions

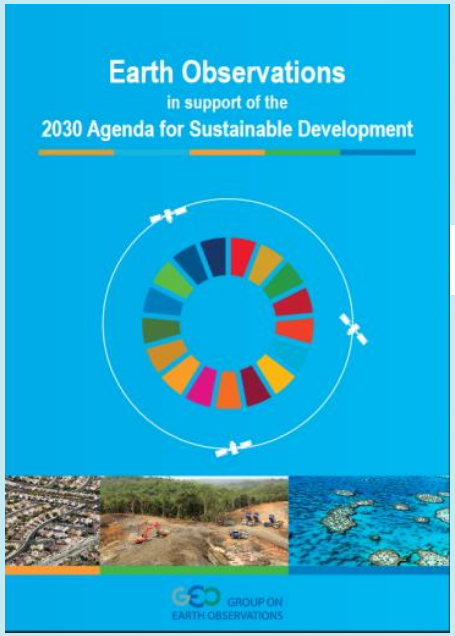
Find out more about how the EU is contributing to the implementation of the 2030 Agenda and towards achieving the Sustainable Development Goals.

In this space you can see which EU policies and actions relate to each Sustainable Development Goal and target. Policies and actions are listed alphabetically. You can learn more about the related policies or actions via links to dedicated thematic websites.



European Commission

Science-based implementation



HIGH-LEVEL POLITICAL FORUM ON SUSTAINABLE DEVELOPMENT

UN environment
United Nations Environment Programme

UN HABITAT FOR A BETTER URBAN FUTURE

unicef

UNECE

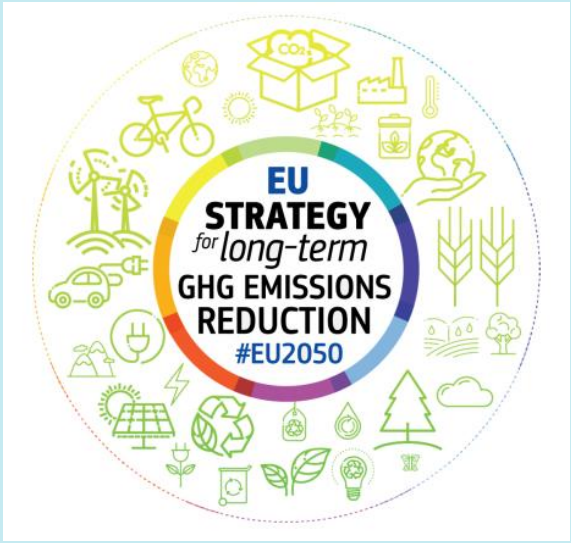
Custodian Agencies

Food and Agriculture Organization of the United Nations

UNESCO
United Nations Educational, Scientific and Cultural Organization

World Health Organization

WMO

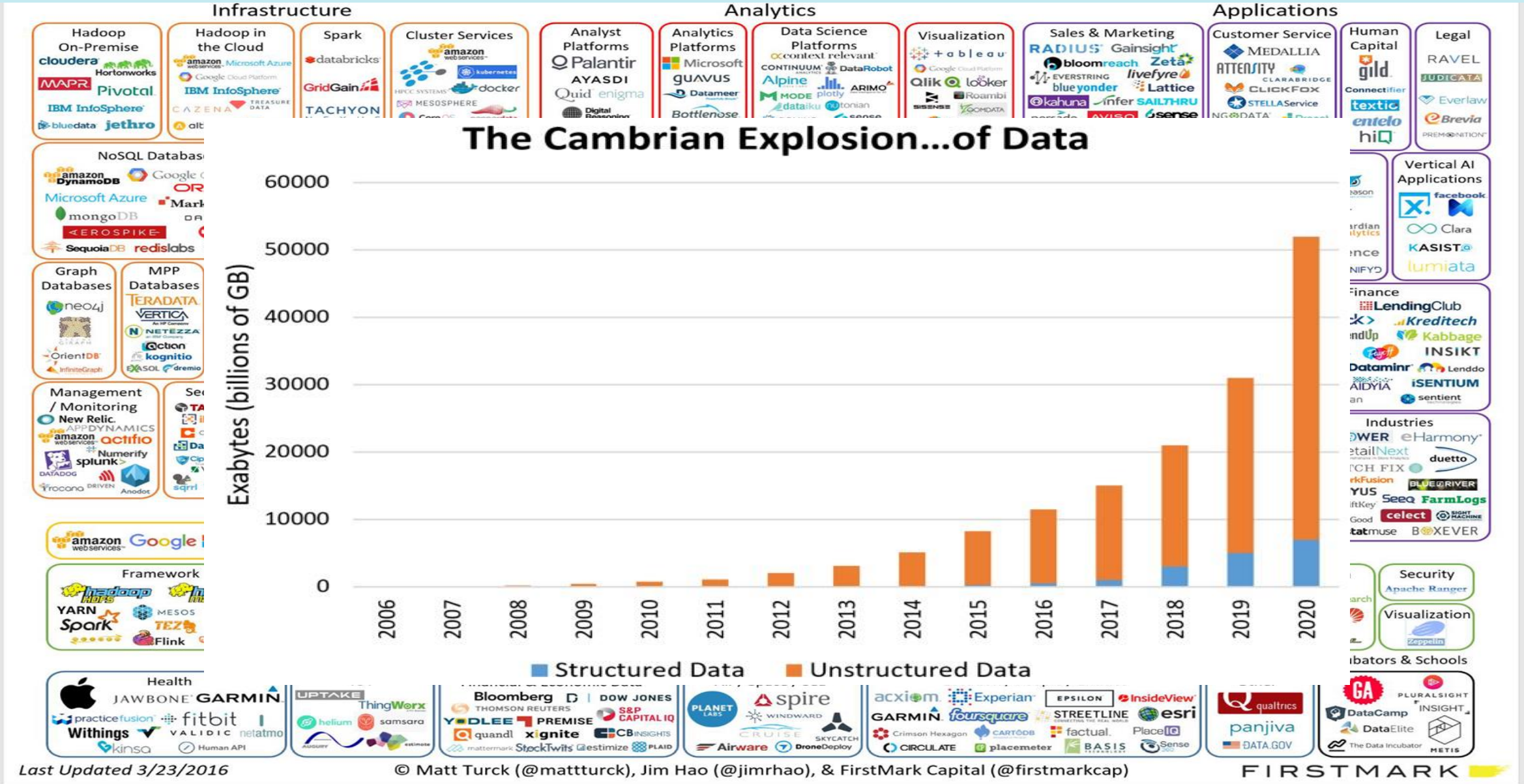


UNITED NATIONS
PARIS CLIMATE
AGREEMENT

European Commission

Image credit: © pixelrobot - Fotolia

European Commission



European Commission

MEGATRENDS


Inequalities


Climate change

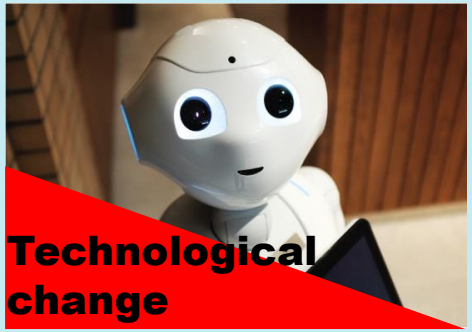

Migration


Consumerism


Resource scarcity


Demographic imbalance

Change of influence


Technological change


Future of work


Reinventing education


Health


Urbanisation

New governance


Security

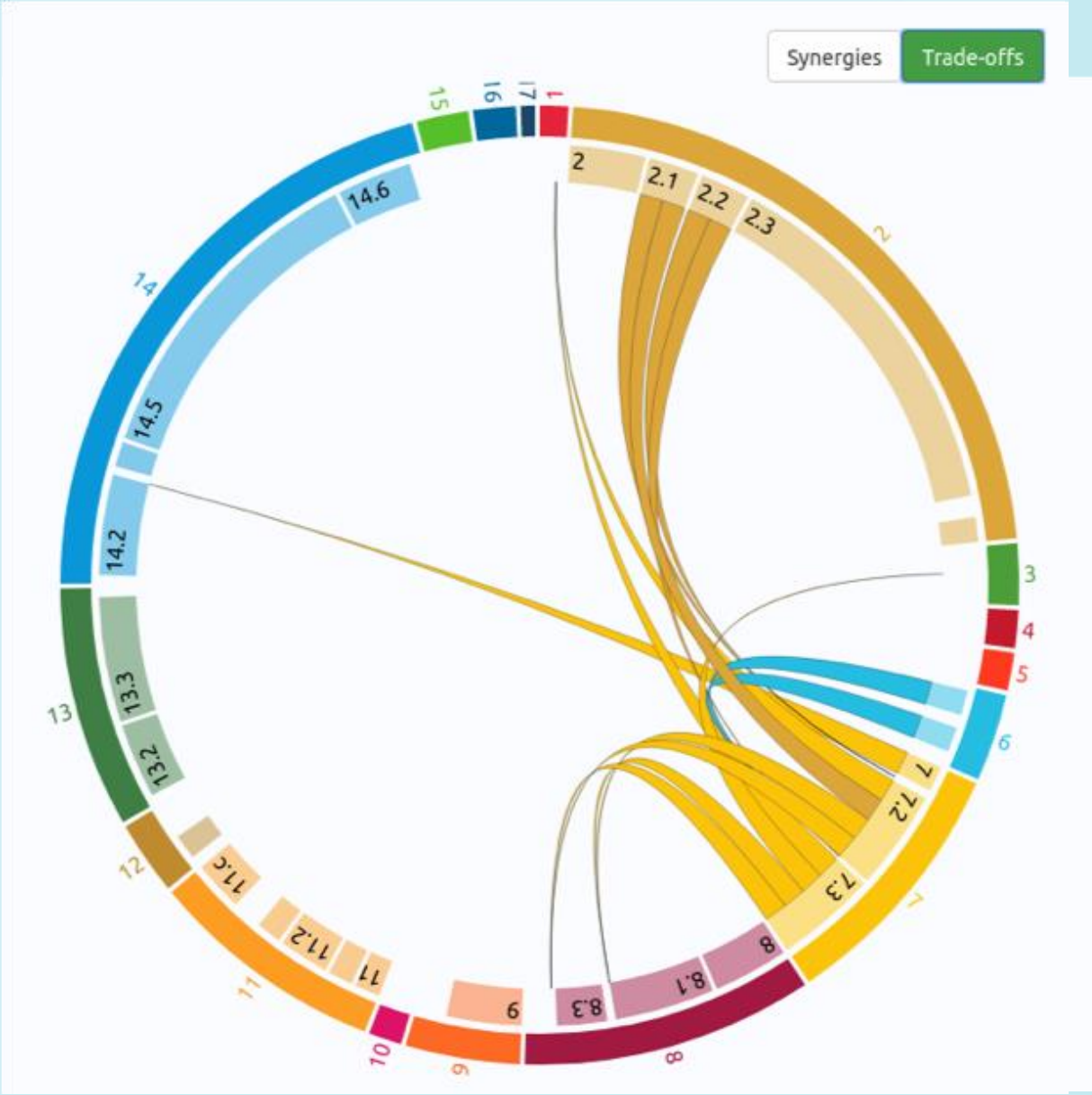
European Commission

Image credit: JRC Megatrends

Interlinkages among the SDGs

Using knowledge on interlinkages to exploit synergies and minimize trade-offs in the policy process can contribute to overall policy coherence

- Survey of existing publications
- A tool to visualize the cumulated interlinkages from a set of publications
- Meta analysis of the main studies on interlinkages



European Commission

Climate change and SDGs: Why are climate-resilient pathways needed for sustainable development?

Sustainable development requires managing many threats and risks, including climate change. Because climate change is a growing threat to development, sustainability will be more difficult to achieve for many locations, systems, and populations unless development pathways are pursued that are resilient to effects of climate change.

IPCC, 2014

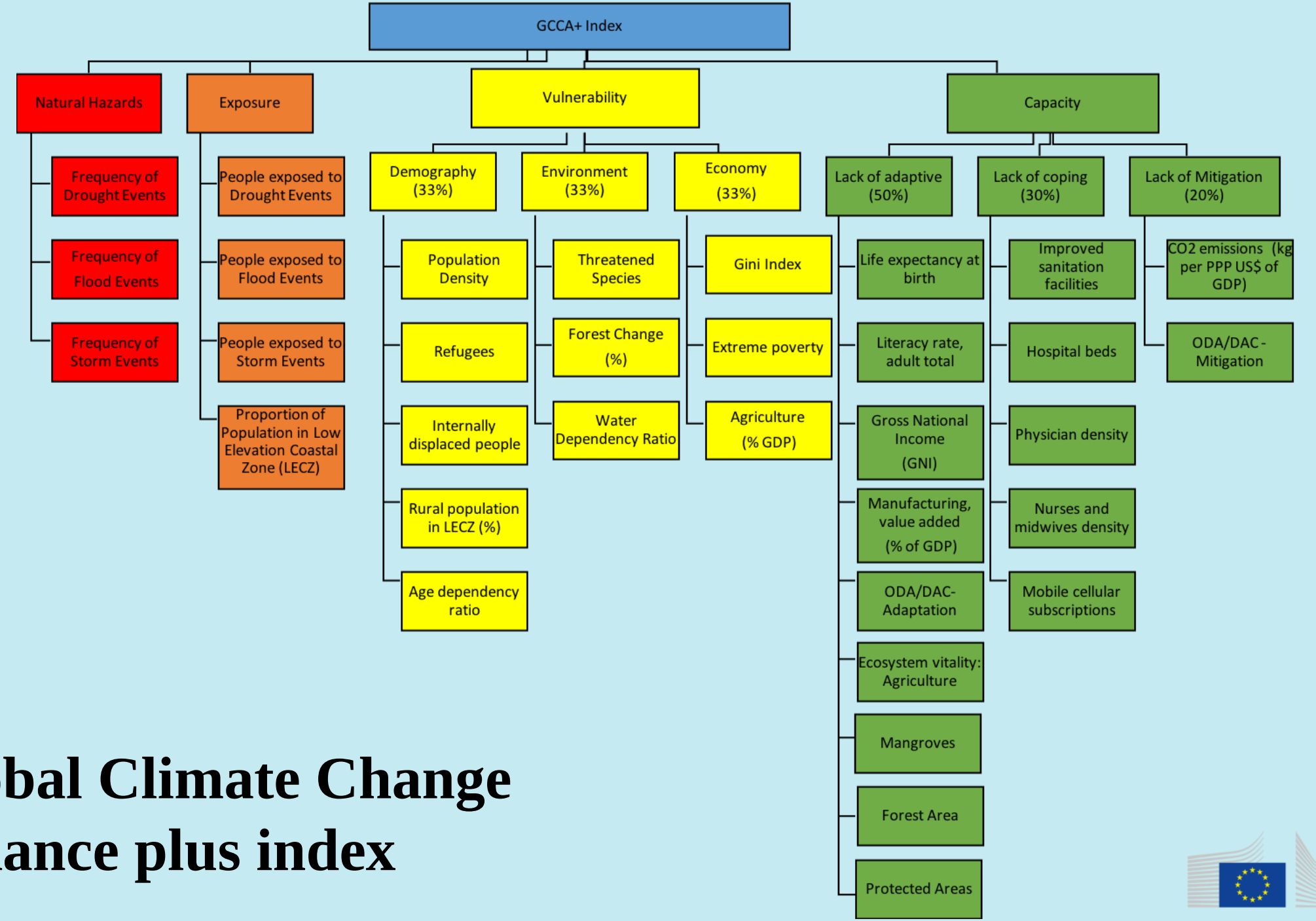
European Commission

Climate change risks and sustainable development

- Losses of ecosystem services
- Effects on human health
- Increasing prices of food commodities on the global market,
- Increasing risks of floods, droughts, storms
- Risks of food insecurity
- Systemic risks to infrastructures from extreme events
- Loss of biodiversity
- Risks for rural livelihoods

Climate change risks and sustainable development

- Losses of ecosystem services: Goal 3, 6, 14, 15
- Effects on human health: Goal 3
- Increasing prices of food: Goal 1, 2
- Increasing risks of floods, droughts, storms: Goal 3, 9, 11
- Food insecurity: Goal 2
- Risks to infrastructures: Goal 9, 11
- Loss of biodiversity: Goal 14, 15
- Risks for rural livelihoods: Goal 1, 2, 8



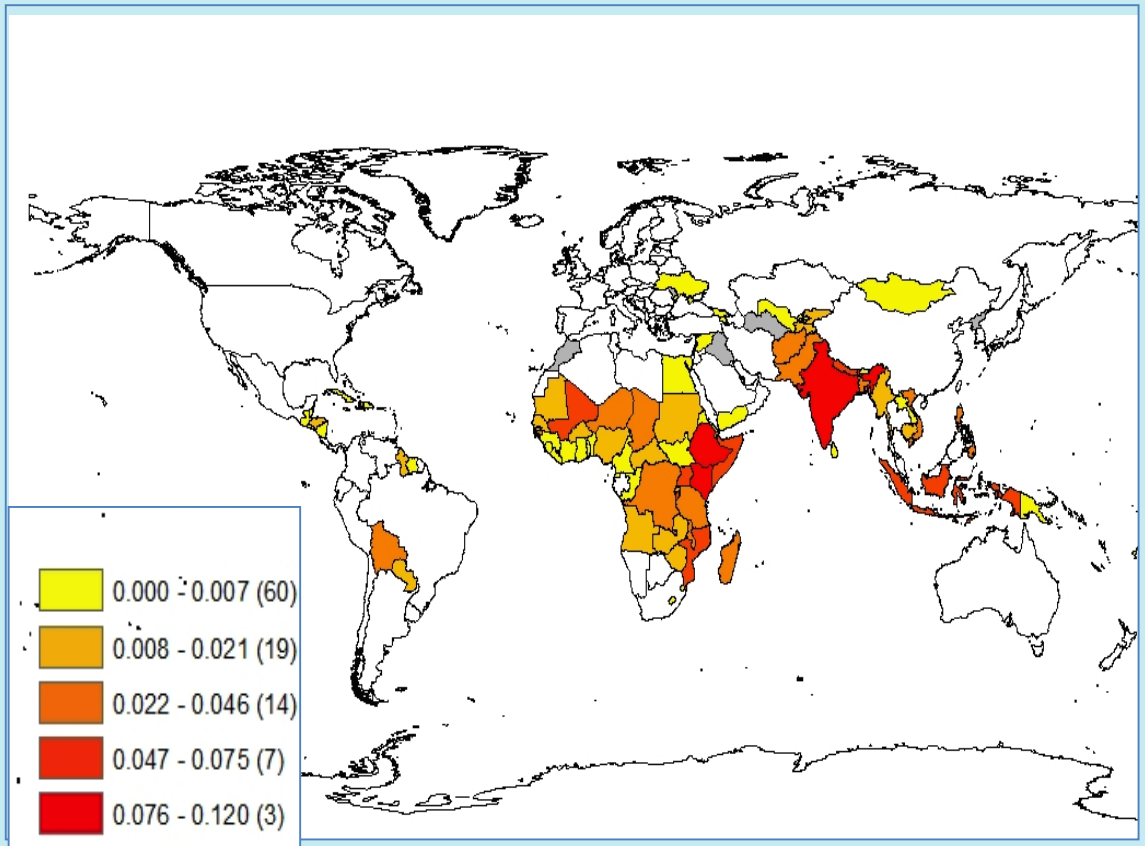
Global Climate Change Alliance plus index

13 CLIMATE ACTION

European Commission

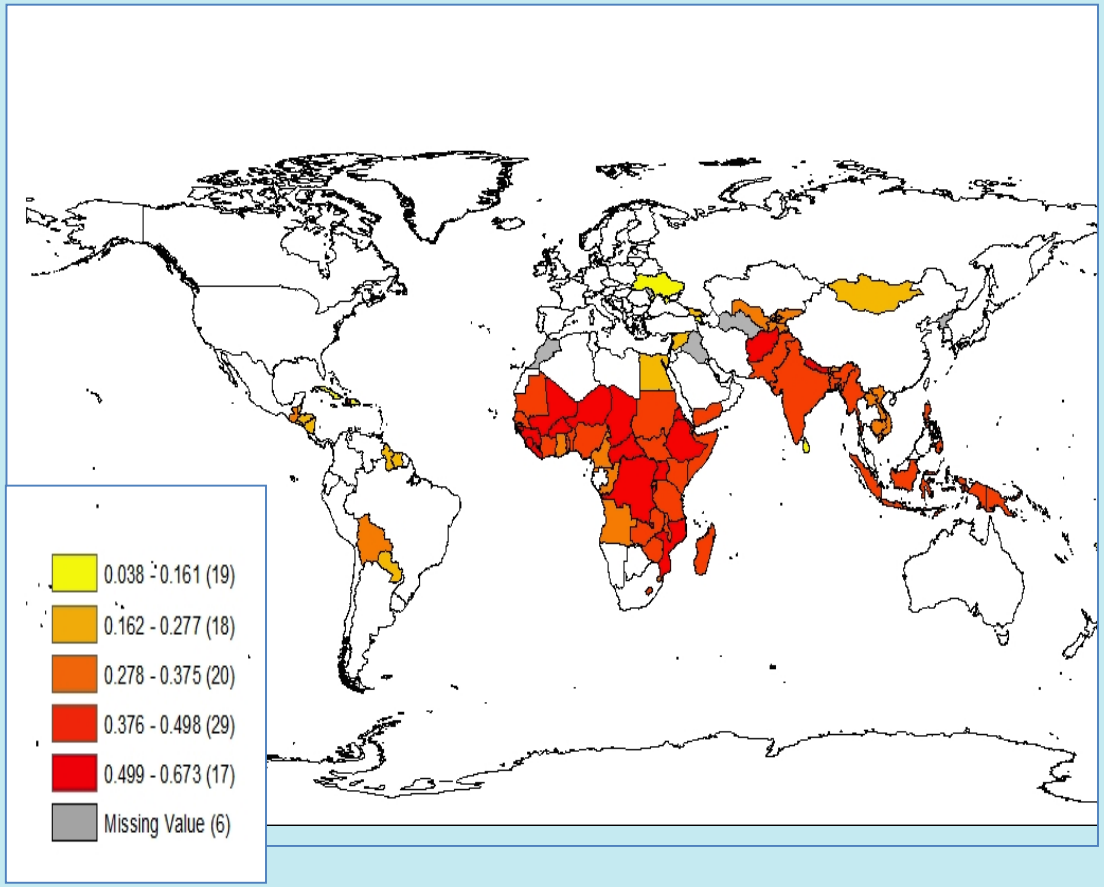
Focus on Climate Change Risk

Countries with no climate extreme events receive the lowest score



Focus on Development

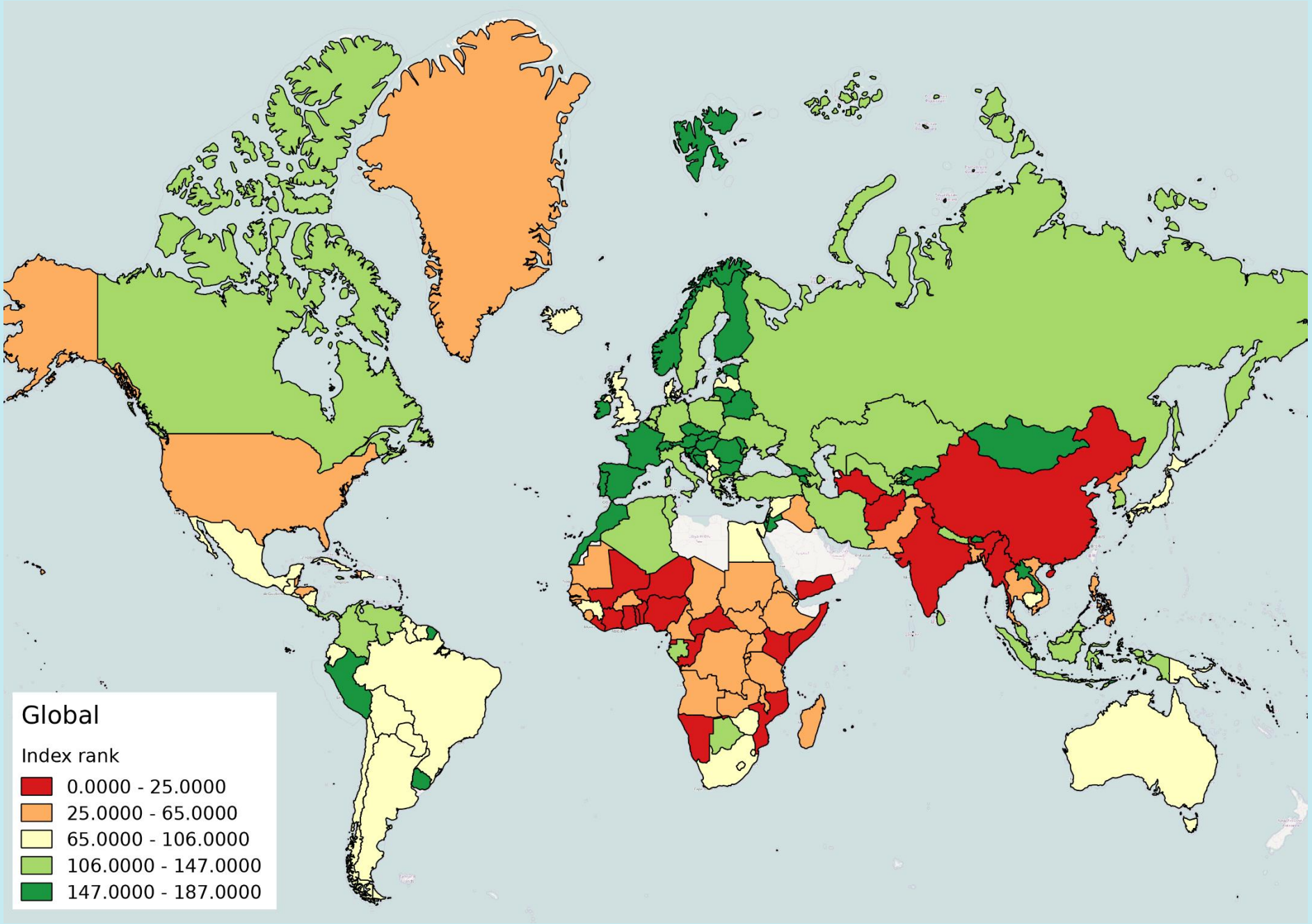
Ranking attributing the same weight to climate events, vulnerability, and adaptive capacity



Ranking is based on the GCCA Index combining indicators on Climate/weather extreme events, Vulnerability, and Adaptive Capacity. Countries in red have the highest score.

European Commission

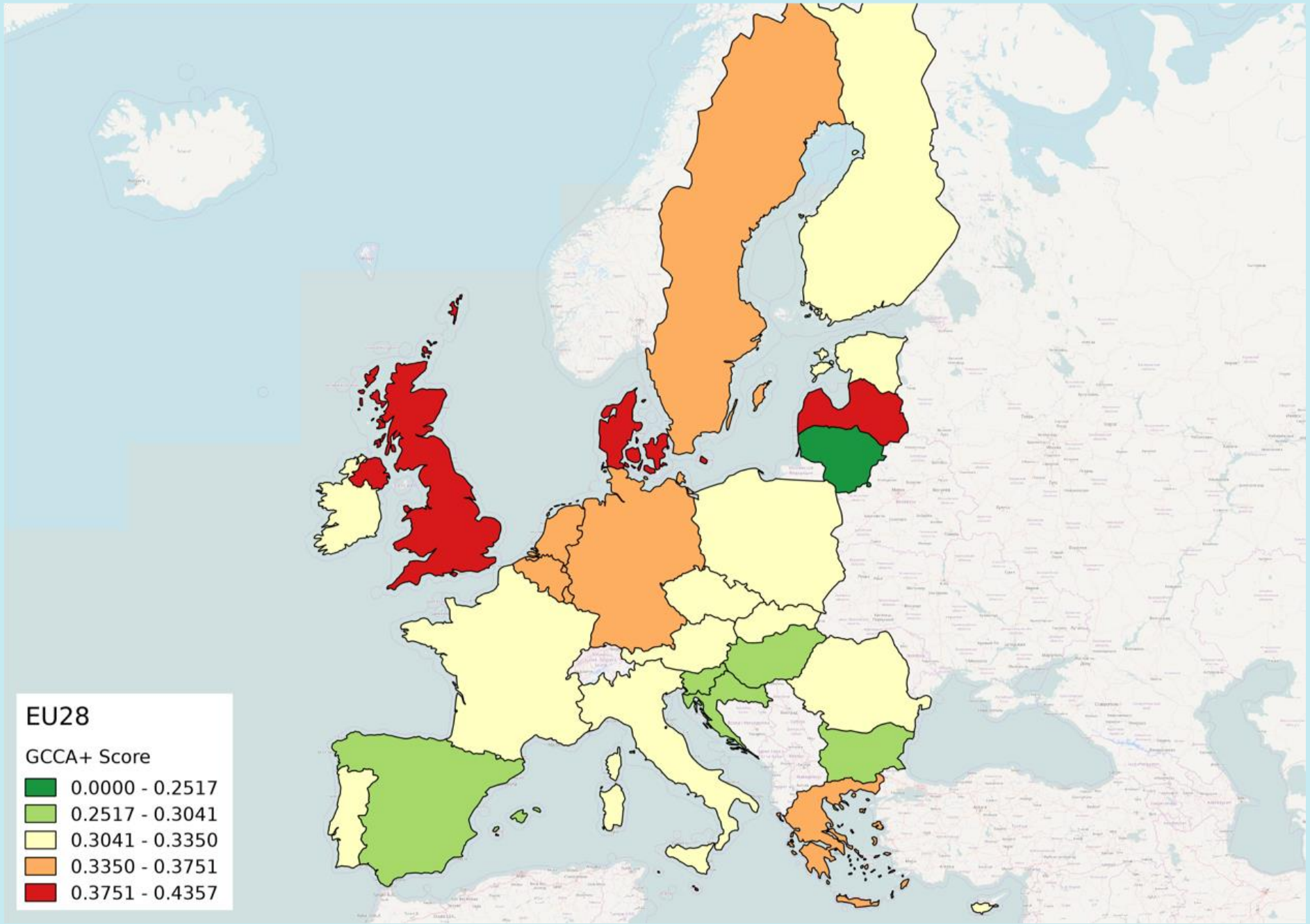
Index on vulnerability to climate change –Global map (index rank)



In the map the lowest rank for the objective of the index indicates the countries the most vulnerable to climate change

European Commission

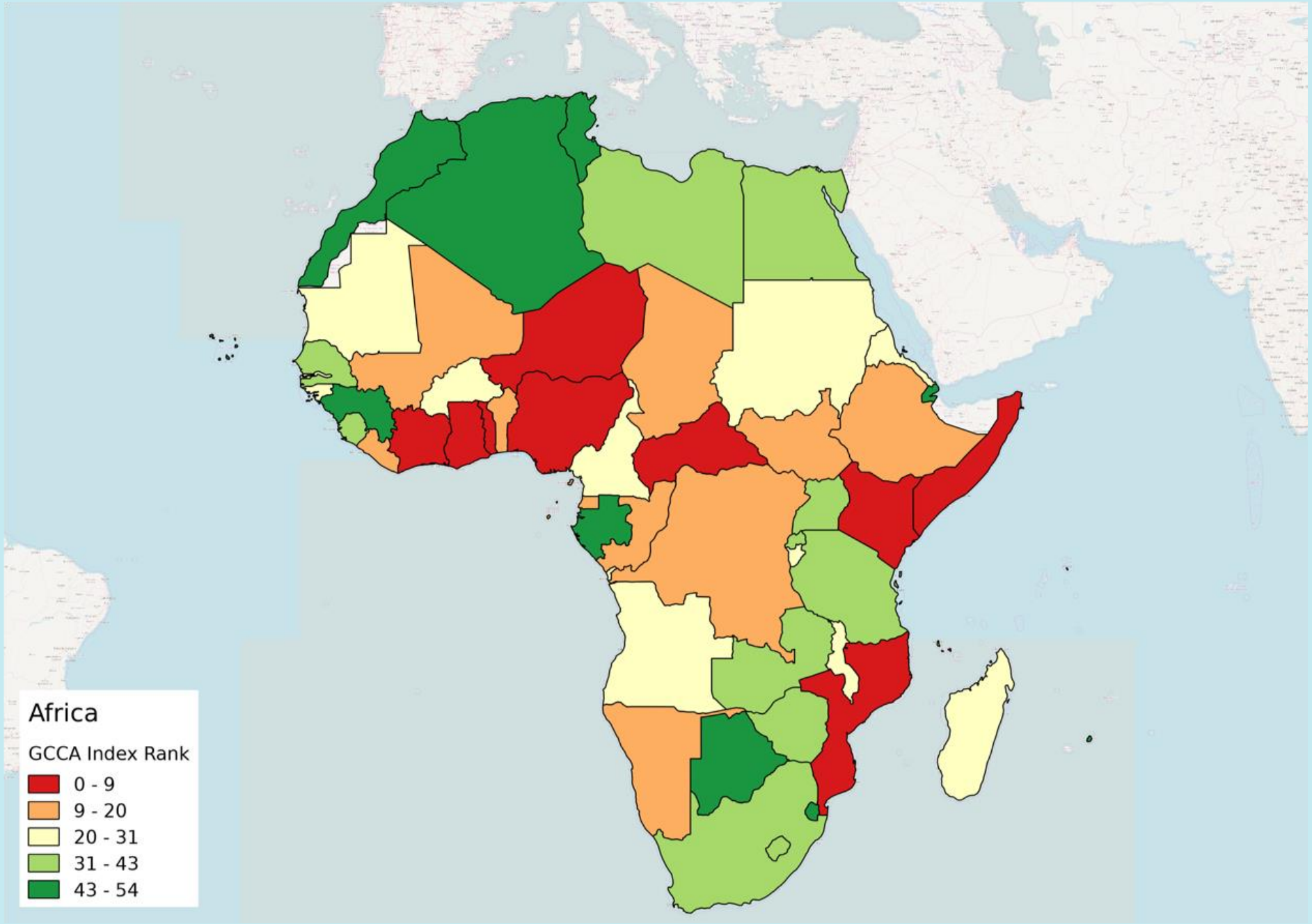
Index on vulnerability to climate change –EU 28 (index score)



In the map the highest score for the objective of the index indicates the countries the most vulnerable to climate change

European Commission

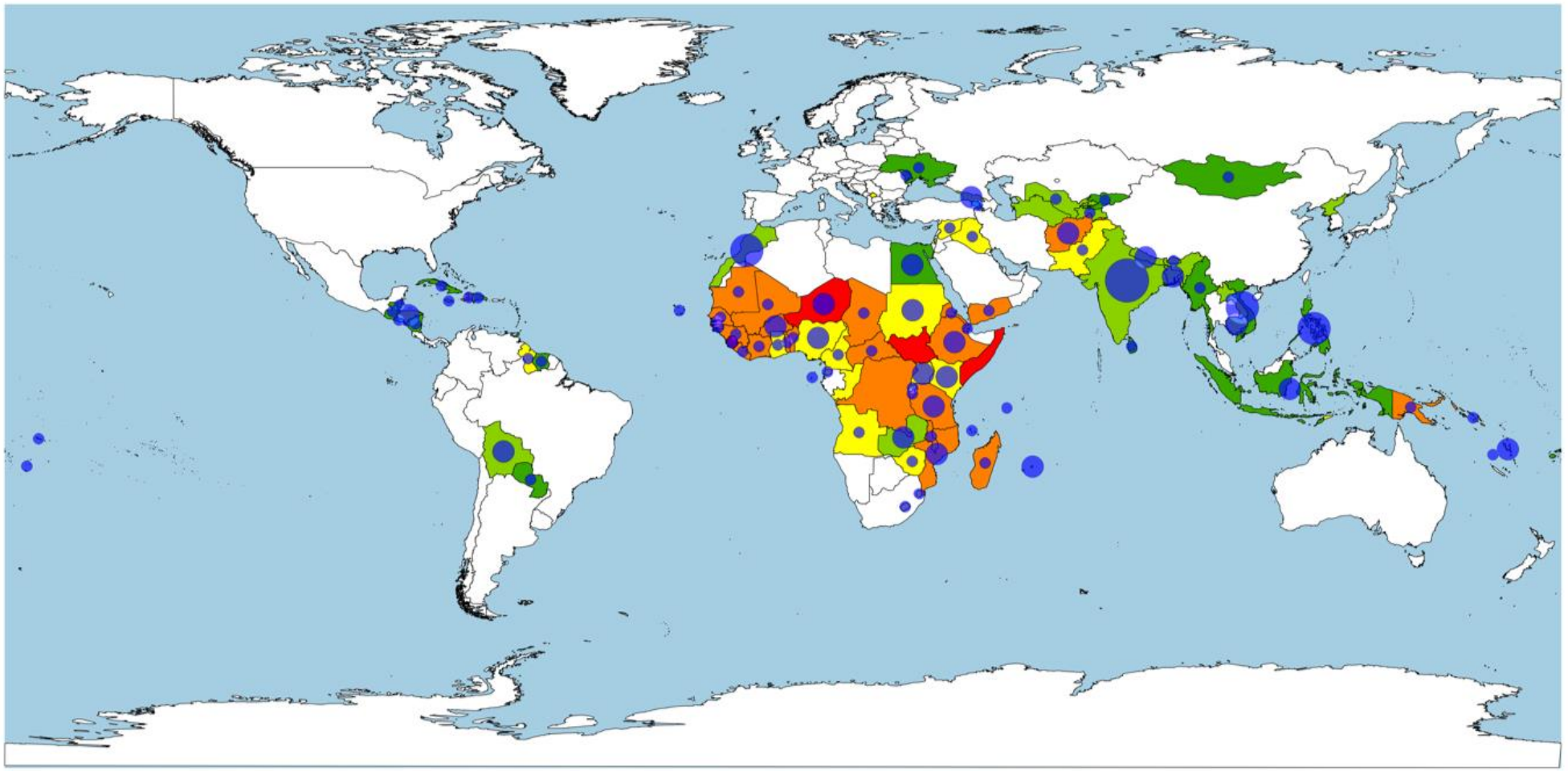
Index on vulnerability to climate change –Africa (index rank)



In the map the lowest rank for the objective of the index indicates the countries the most vulnerable to climate change

European Commission

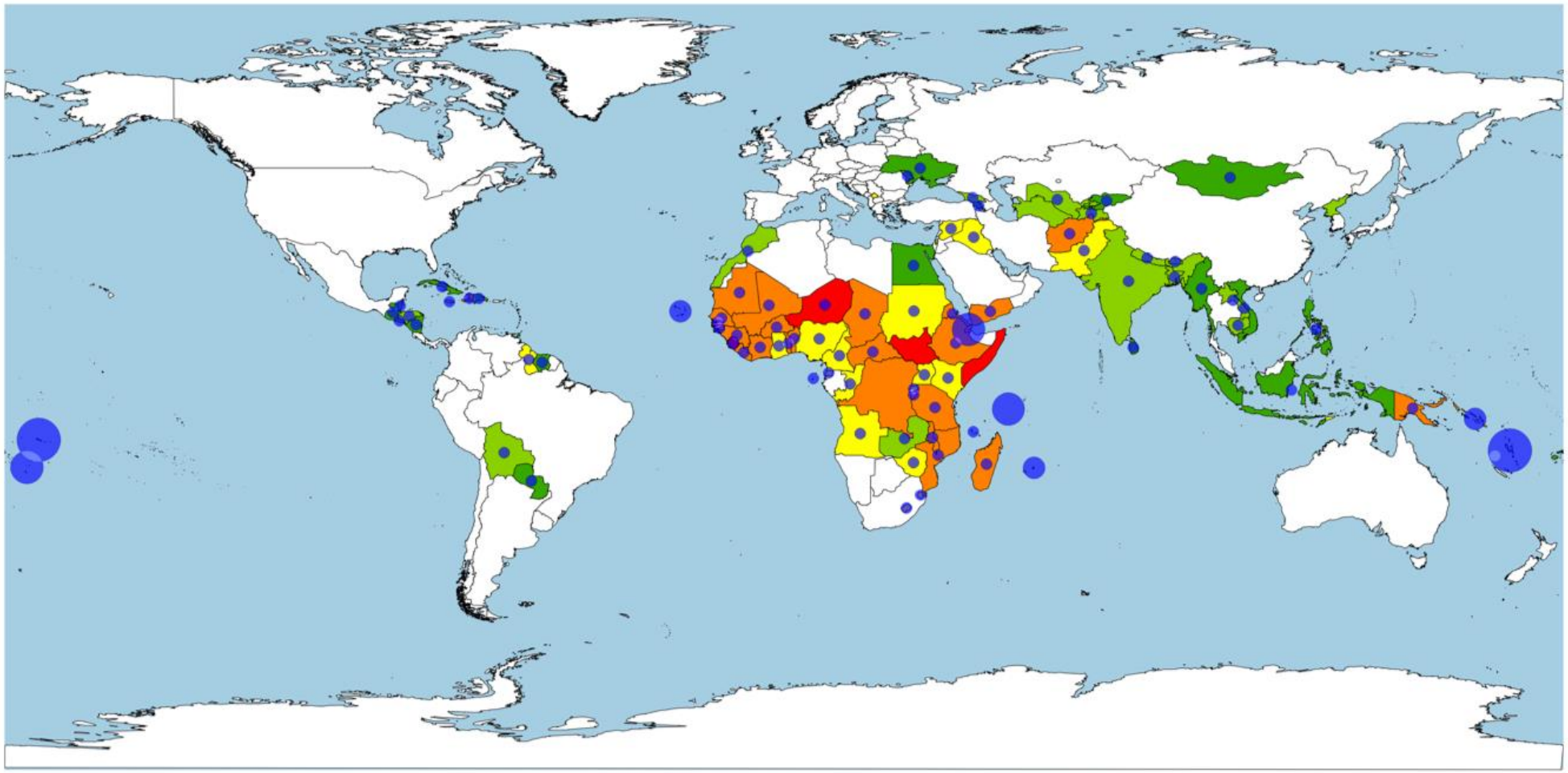
Lack of Capacity| ODA-DAC Adaptation



13 CLIMATE ACTION

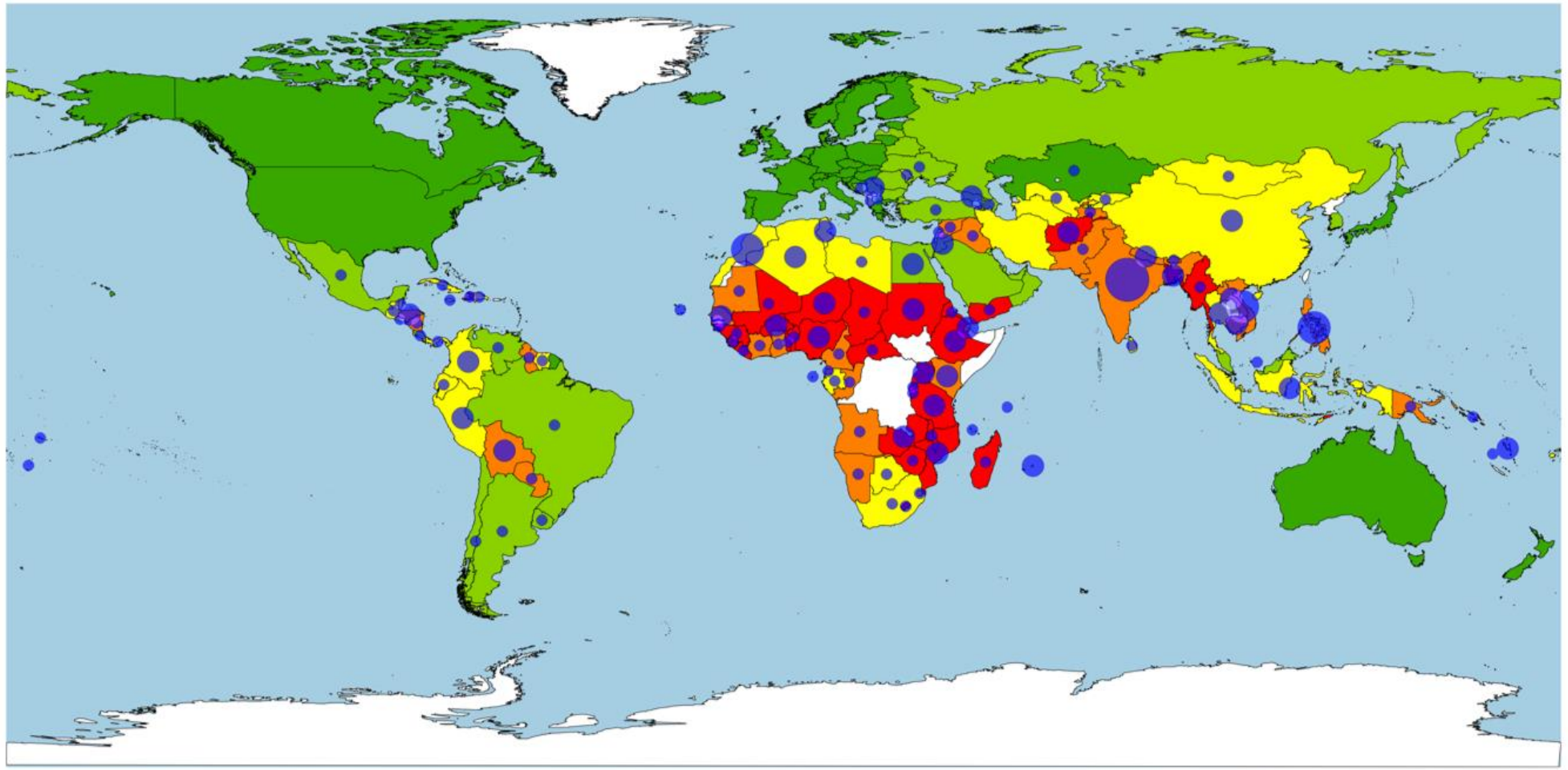
European Commission

Lack of Capacity| ODA-DAC Adaptation (pro capite)



European Commission

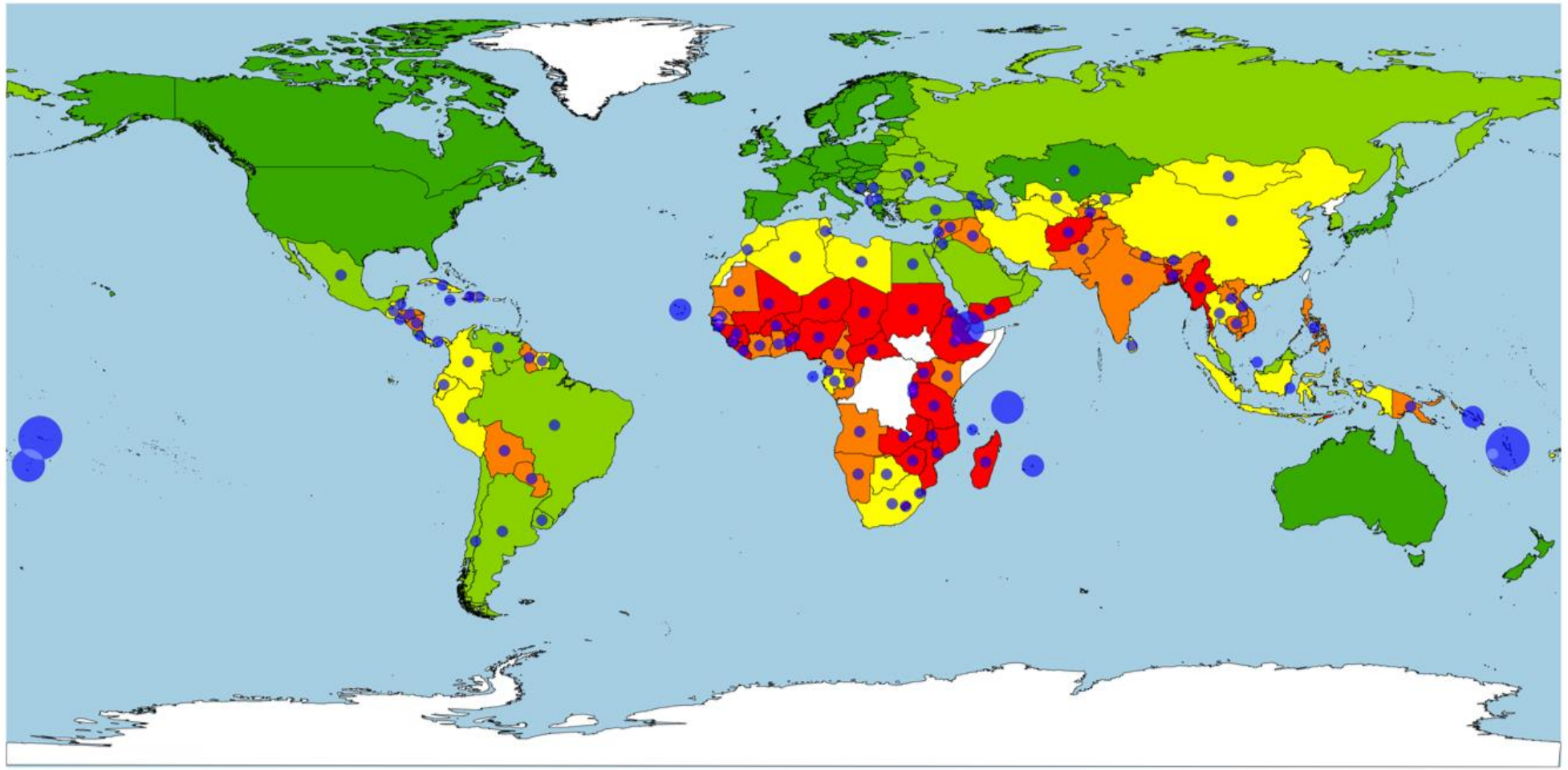
Geography of Vulnerability | Overall DAC with aid activities marked adaptation as significant or principal objective (ODA-DAC)



13 CLIMATE ACTION

European Commission

Geography of Vulnerability | ODA-DAC adaptation *pro capite*

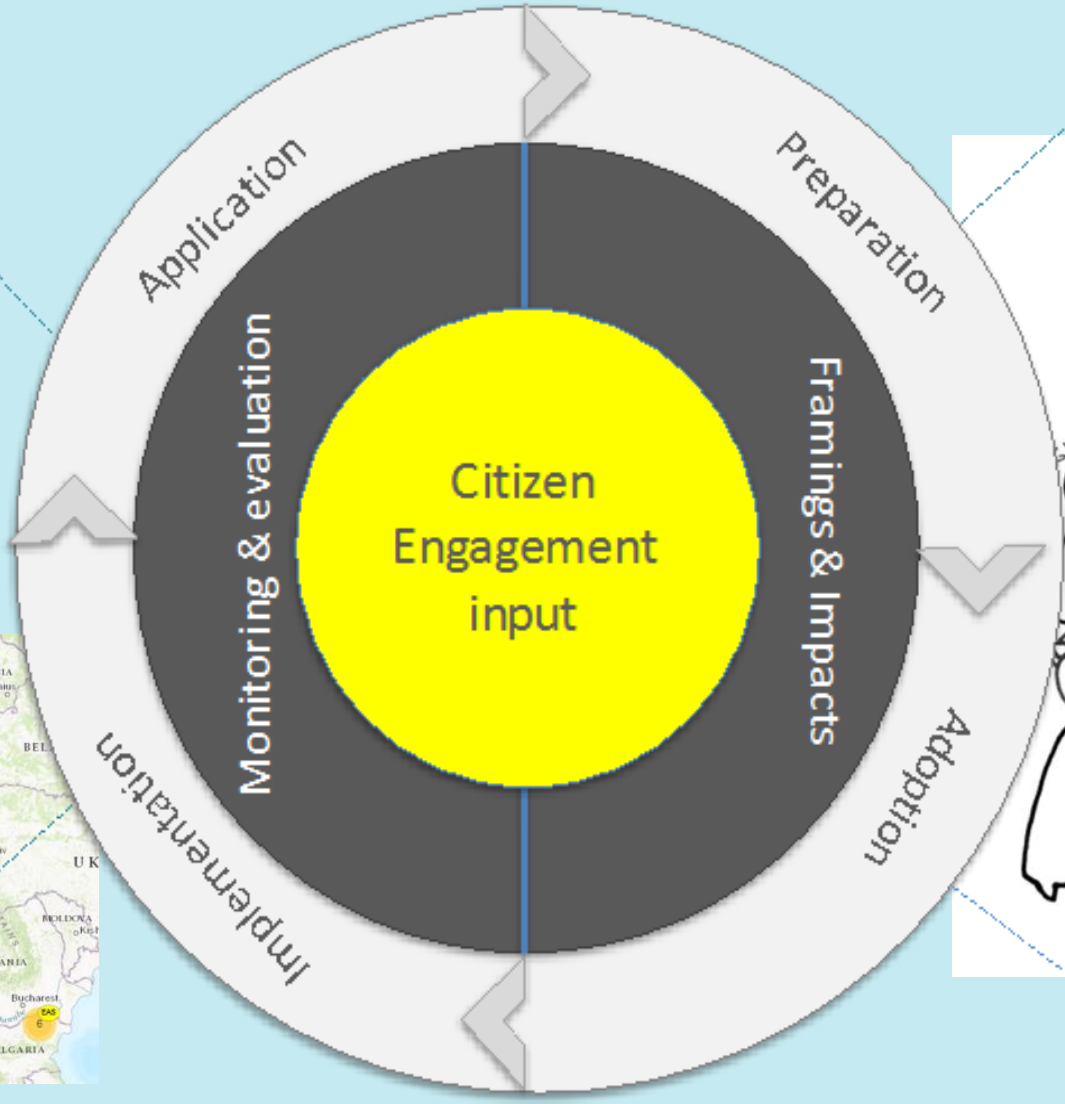


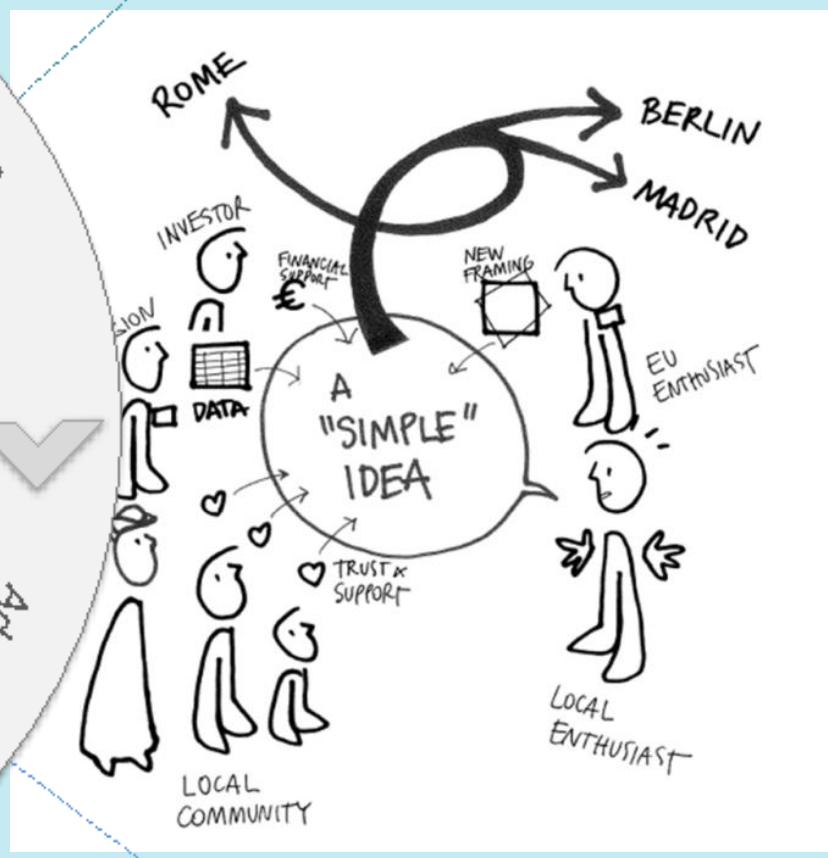
European Commission

What are the emerging solutions?

Evidence for policy 2.0

Engaging with citizens





European Commission

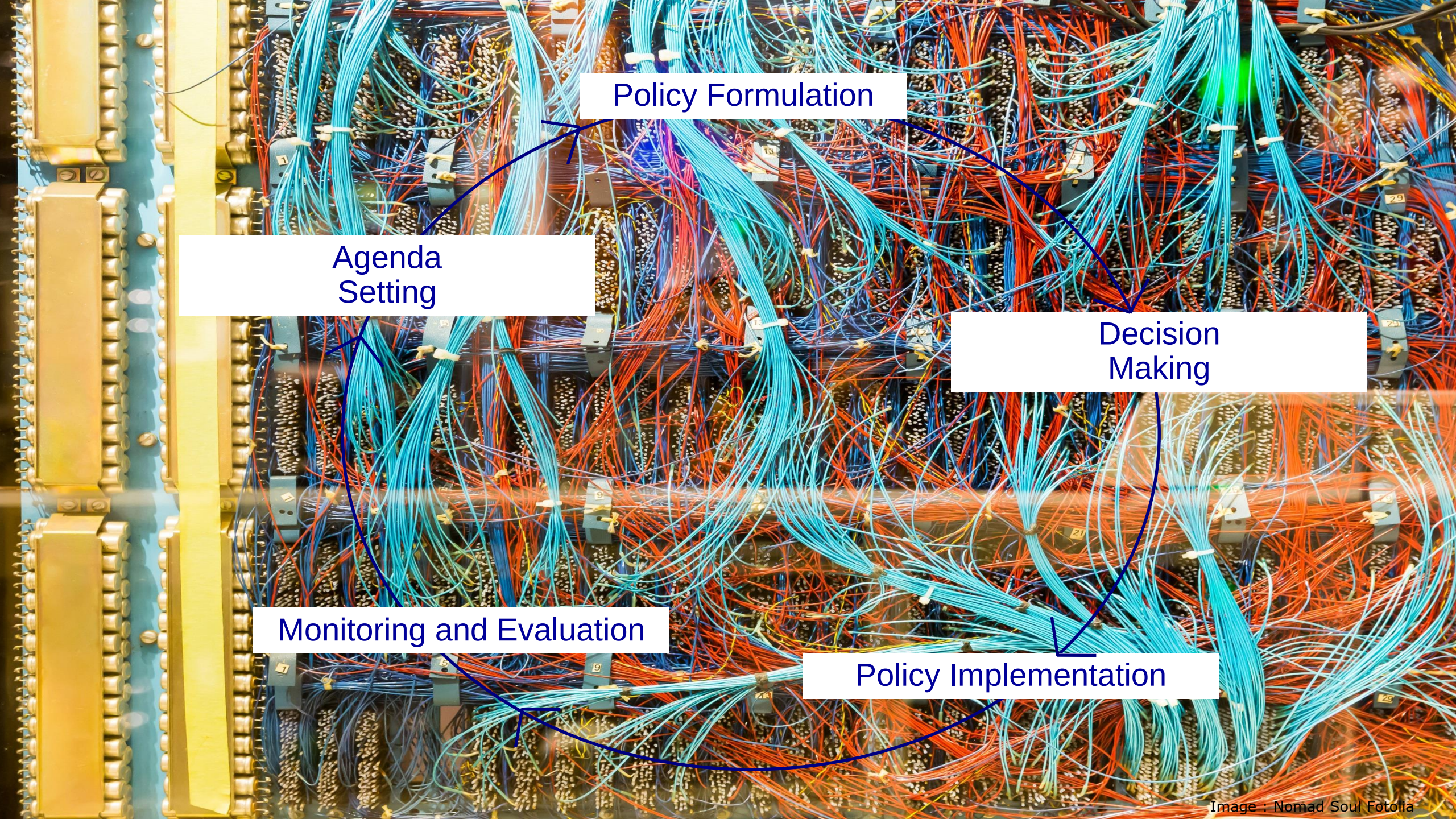


Image : Nomad Soul Fotolia

Vertical knowledge management

Disaster Risk Management Knowledge Centre

Knowledge Centre on Migration and Demography

Knowledge Centre for Territorial Policies

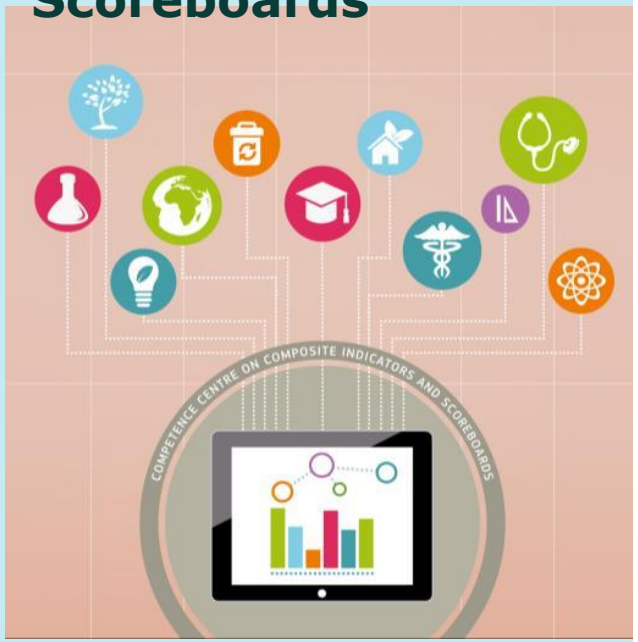
Knowledge Centre on Bio-economy

Knowledge Centre for Food Fraud and Quality

European Commission

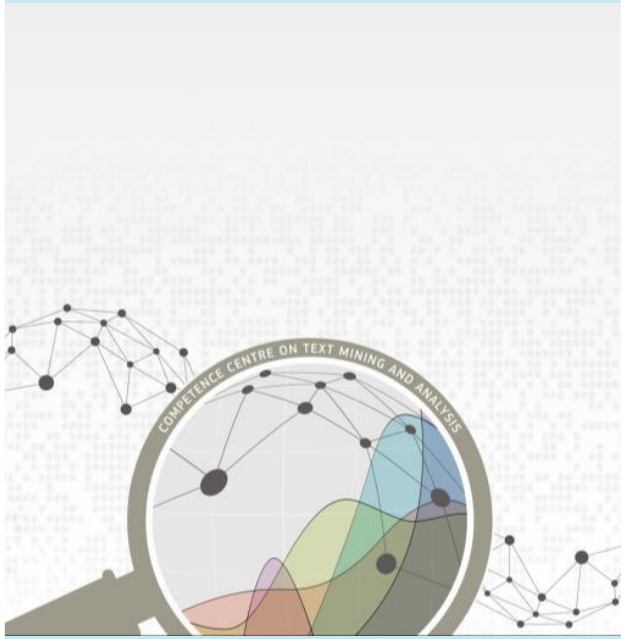
Horizontal knowledge management

Competence Centre on Composite Indicators and Scoreboards

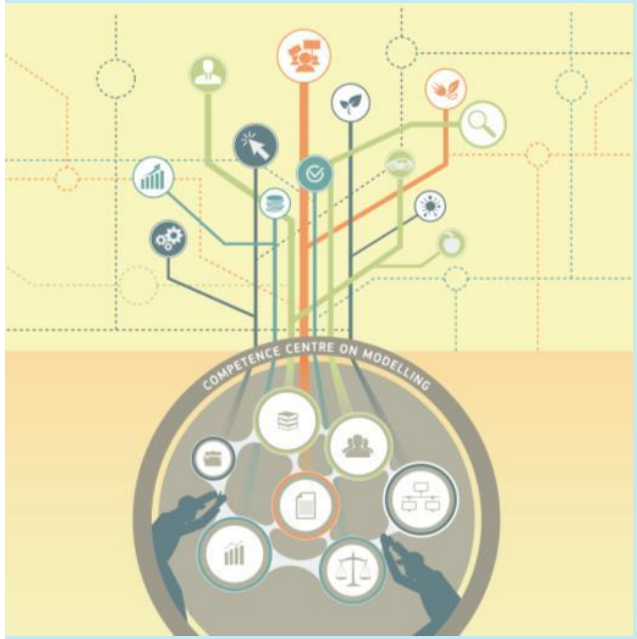


Competence Centre on Microeconomic Evaluation

Competence Centre on Text Mining and Analysis



Competence Centre on Modelling



European Commission

STAY IN TOUCH

- Apollonia Miola apollonia.miola@ec.europa.eu

- EU Science Hub: ***ec.europa.eu/jrc***

- Twitter: ***@EU_ScienceHub***

- Facebook: ***EU Science Hub - Joint Research Centre***

- LinkedIn: ***Joint Research Centre***

- YouTube: ***EU Science Hub***

European Commission