



From Research to Action:

Mapping FACCE-JPI's Policy Document Footprint

JPI « Agriculture, Food Security and Climate Change »

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Introduction

Since 2010, FACCE-JPI has united 24 participating countries in a collective effort to build an integrated European Research Area focused on the interconnected challenges of food security, agriculture, and climate change. The research funded by FACCE-JPI aims to amplify the collective impact of European research on society by fostering a shared vision, aligning research priorities, and promoting coherence. This approach seeks to reduce duplication, increase visibility, and enhance overall impact, including the contribution to policy formulation based on scientific evidence.

FACCE's scientific accomplishments amount to:

- 21 Joint Research Actions
- 170 Research Projects
- A total of 978 scientific publications resulting from these projects documented in the FACCE Project Wheel

Target 3 of the FACCE-JPI [Monitoring and Evaluation Framework document](#) is to *improve the societal impact on the challenge of food security, agriculture and climate change*. While the present document is not meant to report on T3 achievements, it aims to provide a non-exhaustive benchmark analysis of how FACCE's research has been cited in policy documents by governments, think tanks, and policymakers across Europe (and the world), and to provide an overview of FACCE's achievements connecting legislators and researchers.

Methodology

The two databases that are used for this analysis are the FACCE Project Wheel¹ and Overton²: the world's largest searchable index of policy documents, which has developed a tool to allow researchers to discover where their publications are cited in policy documents and to easily visualise and share what they find. The tool scans a database of 10 million documents to illustrate where papers have been cited. It is important to note that Overton has a broad definition of what constitutes a policy document. This includes reports, guidelines and working papers written for or by policymakers and published by sources such as governments, non-governmental organisations (NGOs), intergovernmental organisations (IGOs) and think tanks. Moreover, the database provides insight into the types of research that politicians pay attention to, but policy citations don't necessarily imply impact or influence.

¹ <https://project-wheel.faccejpi.net/>

² <https://app.overton.io/>

Out of the 978 scientific publications stored in the FACCE Project Wheel, Digital object identifiers (DOIs) were obtained for 861 of them using the Crossref tool. A personalised dashboard was created in Overton by inputting these DOIs, and the tool returned a summary of policy documents that cite these publications and a map showing where the citations originate and when they were made.

Results

- Out of 861 DOIs entered into the tool, it was found that 34% of FACCE-JPI papers are cited in policy documents.
- 68.5% of these papers are cited in more than one policy document (possibly pointing to a cumulative effect in policy citation: once a paper is cited, it is more likely to be cited again).
- FACCE publications have been cited in the policy documents of 44 different countries.

On what types of policy documents is FACCE cited?

Table 1: Distribution of Policy Document Types Citing FACCE-funded Publications

Type of Policy Body* *according to Overton database	Number of Policy Documents Citing a FACCE Publication
Government	211
Inter-Governmental Organisation (IGO)	161
Think Tank	135
Other	24

Where are FACCE publications most cited?

FACCE Publication Table 2: Top 20 Institutions Citing FACCE Publications in Policy Documents

Policy Institution	Number of Policy Documents Citing FACCE Publication
Food and Agriculture Organization of the United Nations (IGO)	101
Publications Office of the European Union (Government)	78
United Nations (IGO)	63
CGIAR (Think Tank & Research Center)	45
Joint Research Centre (Government Agency)	42
UN Environment Programme (IGO)	33
Umwelt Bundesamt (German Government)	28
Analysis & Policy Observatory (Australian Think Tank)	24
IIASA (Austrian Think Tank)	24
IPCC (IGO)	24
OECD (IGO)	24
House Committees (US Government)	21
World Bank (IGO)	21
Government of Switzerland	19
World Meteorological Organization (IGO)	18
Ecologic Institute (German Think Tank)	17
Government of Nepal	17
IPBES (IGO)	17
IFPRI (Think Tank)	15
Luke (Research Center)	15
Government of Italy	14

Table 3 : Top 20 locations of insitutions citing FACCE Publications in their Policy Documents

Country	Number of Policy Documents citing a FACCE Publication
Inter-Governmental Organisation (IGO)	161
EU	87
UK	64
USA	62
France	57
Germany	53
Australia	32
Belgium	27
Austria	26
Finland	25
Sweden	23
Netherlands	23
Italy	20
Switzerland	20
Spain	19
Nepal	17
Canada	14
Denmark	12
Ireland	12
Norway	12

Figure 2: Worldwide Citations of FACCE Publications in Policy Documents

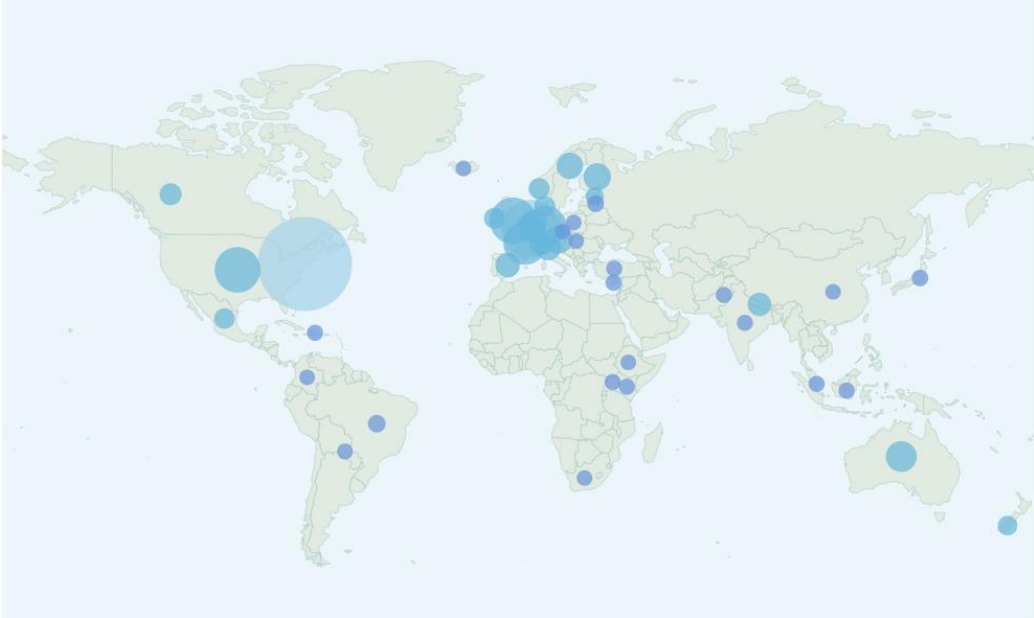


Figure 3: Citations of FACCE Publications in Policy Documents Across Europe*

**Lighter circle between France and Germany refers to European institutions' policy document*



What institutions have produced research with the highest policy footprint under the FACCE umbrella?

Table 4: Top 20 Institutions Affiliated with Authors of FACCE-Funded Scientific Publications Cited in Policy Documents

Institution associated with authors of scientific publications funded by FACCE	Number of Policy documents in which publication is cited
Wageningen University & Research (NL)	51
Potsdam Institute for Climate Impact Research (DE)	30
Natural Resources Institute Finland (FI)	29
Aarhus University (DK)	27
Commonwealth Scientific and Industrial Research Organisation (CSIRO) (AU)	26
University of Aberdeen (UK)	26
Leibniz Centre for Agricultural Landscape Research (DE)	22
Swedish University of Agricultural Sciences (SE)	22
University of Bonn (DE)	22
INRAE (FR)	20
Rothamsted Research (UK)	19
Technical University of Madrid (ES)	17
International Institute for Applied Systems Analysis (AT)	16
University of Göttingen (DE)	16
University of Minnesota (US)	15
University of Natural Resources and Life Sciences (AT)	15
University of Florence (IT)	14
Norwegian Institute of Bioeconomy Research (NO)	13
ETH Zurich (CH)	12
Lund University (SE)	12
Teagasc (IE)	12
University of Sassari (IT)	12

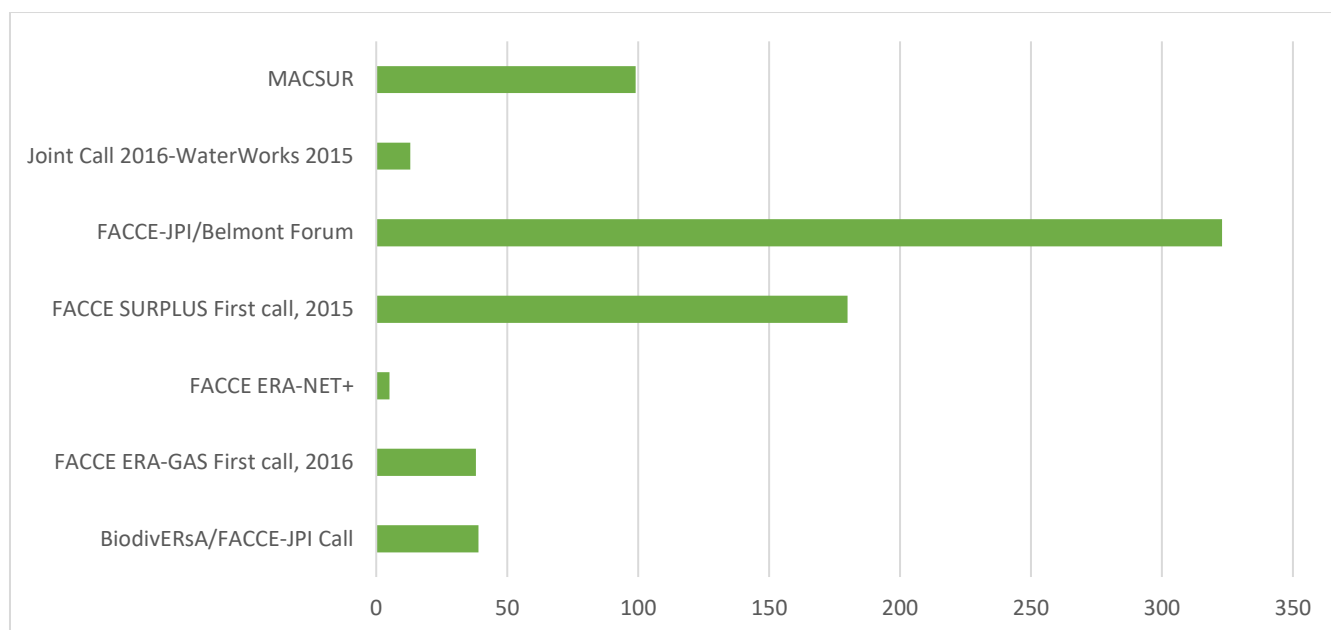
Which FACCE actions/calls have had the highest policy footprint?

Table 5: Top FACCE Publications Cited in Policy Documents

FACCE Publication Title	Project	Action/Call	Number of Policy Documents Citing Publication	Top Institutions Citing Publication
Springmann, Marco et al. 2018, Options for keeping the food system within environmental limits	SUSTAg	FACCE SURPLUS First call, 2015	105	IPCC, IPBES, FAO, UNEP, OECD, UK Parliament...
Herrero, Mario et al. 2016, Greenhouse gas mitigation potentials in the livestock sector	DEVIL	FACCE-JPI/Belmont Forum	69	DG INTPA, CGIAR, FAO, World Bank...
Von Lampe, M. et al. 2014, Why do global long-term scenarios for agriculture differ? An overview of the AgMIP Global Economic Model Intercomparison	MACSUR 1	MACSUR	59	JRC, OECD, IEEP, FAO...
Herrero, Mario et al. 2017, Farming and the geography of nutrient production for human use: a transdisciplinary analysis	DEVIL	FACCE-JPI/Belmont Forum	55	FAO, IEEP, WRI, CGIAR...
Paustian, Keith et al. 2016, Climate-smart soils	DEVIL	FACCE-JPI/Belmont Forum	53	DG AGRI, JRC, IPCC...
Hasegawa, Tomoko et al. 2018, Risk of increased food insecurity under stringent global climate change mitigation policy	SUSTAg	FACCE SURPLUS First call, 2015	38	JRC, CGIAR, FAO, OECD
Muller, Adrian et al. 2017, Strategies for feeding the world more sustainably with organic agriculture	DEVIL	FACCE-JPI/Belmont Forum	36	JRC, IPCC, UNEP...
Müller, C. & Robertson, R.D. 2014, Projecting future crop productivity for global economic modeling	MACSUR 1	MACSUR	31	JRC, IPBES, CGIAR, OECD...
Van Meijl, Hans et al. 2018, Comparing impacts of climate change and mitigation on global agriculture by 2050	SUSTAg	FACCE SURPLUS First call, 2015	30	JRC, IPCC, FAO...
Samberg, Leah H. et al. 2016, Subnational distribution of average farm size and smallholder contributions to global food production	DEVIL	FACCE-JPI/Belmont Forum	25	CGIAR, FAO, World Bank...
Thornton, Philip K. et al. 2018, A framework for priority-setting in climate smart agriculture research	DEVIL	FACCE-JPI/Belmont Forum	21	CGIAR, FAO
Greenleaf, Sarah S. & Kremen, Claire 2006, Wild bees enhance honey bees' pollination of hybrid sunflower	Ecofruit	BiodivERsA/FACCE-JPI Call	20	EEA, DG IPOL, IPBES, FAO...

Smith, Pete 2016, Soil carbon sequestration and biochar as negative emission technologies	DEVIL	FACCE-JPI/Belmont Forum	19	FAO, OECD, CGIAR...
Frank, Stefan et al. 2017, Reducing greenhouse gas emissions in agriculture without compromising food security?	DEVIL	FACCE-JPI/Belmont Forum	18	OECD, IPCC, UNEP...
Jonsson, R et al. 2018, Outlook of the European forest-based sector: forest growth, harvest demand, wood-product markets, and forest carbon dynamics implications	FORCLIMIT	FACCE ERA-GAS First call, 2016	17	JRC, DG CLIMA, FAO
Gemmill-Herren, Barbara 2016, Pollination services to agriculture: sustaining and enhancing a key ecosystem service	Ecofruit	BiodivERsA/FACCE-JPI Call	12	FAO, IPBES, CGIAR
Röös, Elin et al. 2017, Greedy or needy? Land use and climate impacts of food in 2050 under different livestock futures	DEVIL	FACCE-JPI/Belmont Forum	11	DG AGRI, JRC, IPBES...
Pilli, Roberto et al. 2018, The Carbon Budget Model of the Canadian Forest Sector (CBM-CFS3): customization of the Archive Index Database for European Union countries	FORCLIMIT	FACCE ERA-GAS First call, 2016	11	JRC
De Ruiter, Henri et al. 2017, Total global agricultural land footprint associated with UK food supply 1986–2011	DEVIL	FACCE-JPI/Belmont Forum	10	JRC, FAO, UNEP
Nabuurs, Gert-Jan et al. 2018, Understanding the implications of the EU-LULUCF regulation for the wood supply from EU forests to the EU	FORCLIMIT	FACCE ERA-GAS First call, 2016	10	DG CLIMA, JRC, FAO
Semenov, M.A. et al. 2012, Shortcomings in wheat yield predictions	MACSUR 1	MACSUR	9	IPCC, UNEP, World Bank
De Sa, Luis Carlos et al. 2018, Studies of the effects of microplastics on aquatic organisms: What do we know and where should we focus our efforts in the future?	IMPASSE	Joint Call 2016-WaterWorks 2015	7	JRC, DG RTD, FAO, UNEP
Clough, Yann et al. 2020, Field sizes and the future of farmland biodiversity in European landscapes	ECODEAL	BiodivERsA/FACCE-JPI Call	7	DG ENER, EEA, JRC...
Bohan, David A et al. 2017, Next-Generation Global Biomonitoring: Large-scale, Automated Reconstruction of Ecological Networks	PREAR	FACCE SURPLUS First call, 2015	7	JRC, DG CLIMA, FAO
Schader, Christian et al. 2015, Impacts of feeding less food-competing feedstuffs to livestock on global food system sustainability	DEVIL	FACCE-JPI/Belmont Forum	6	IPBES, DG AGRI, DG RTD...
Hurley, Rachel & Luca, Nizzetto 2018, Fate and occurrence of micro(nano)plastics in soils: Knowledge gaps and possible risks	IMPASSE	Joint Call 2016-WaterWorks 2015	6	DG RTD, DG ENV, UNEP...
Watson, Christine A. et al. 2017, Chapter Four - Grain Legume Production and Use in European Agricultural Systems	Climate-CAFE	FACCE ERA-NET+	5	DG AGRI, STOA

Figure 4: Citation Frequency in Top Policy Documents by Action/Call



Discussion and Conclusion

FACCE-JPI has demonstrated a significant international policy footprint. Publications generated within the framework of FACCE-funded projects are extensively cited by inter-governmental organisations, European institutions, and FACCE member countries. Additionally, some non-member countries, notably the USA, Canada, Australia and Nepal, have also utilised FACCE research to inform their policy formulation. Despite the absence of formal collaborations between FACCE and international governmental organisations such as the FAO and CGIAR, these entities have notably benefited from FACCE-funded publications.

Examining the FACCE actions/calls that have attracted the most interest from policymakers—ERA-Net Cofund FACCE SURPLUS (*SRA 2020 CT 2: Sustainable & Resilient Agriculture*), Belmont Forum/FACCE-JPI Call (*SRA 2010-2020 CT 1: Sustainable Food Security under Climate Change*), and MACSUR (*SRA 2010-2020 CT 1: Sustainable Food Security under Climate Change*)—reveals a diverse range of topics. These topics include advancing the bioeconomy and sustainable biomass utilisation, understanding the complex relationships between land use and food security, and assessing the impacts of climate change on agriculture. Despite this diversity, a common theme among these calls is an emphasis on interdisciplinary collaboration. This echoes claims from citation studies that interdisciplinary research is most likely to gain a lot of policy citations³⁴.

The results of this preliminary analysis clearly indicate that FACCE has had a substantial policy impact, significantly contributing to policy needs surrounding agriculture, food security, and climate change. The cited papers represent the outcomes of FACCE's investments in various projects. This rough report

³ Dalmeet Singh Chawla, « Revealed: The Ten Research Papers That Policy Documents Cite Most », *Nature*, 15 avril 2024, <https://doi.org/10.1038/d41586-024-00660-1>.

⁴ Keisuke Okamura, « Interdisciplinarity Revisited: Evidence for Research Impact and Dynamism », *Palgrave Communications* 5, n° 1 (12 novembre 2019): 141, <https://doi.org/10.1057/s41599-019-0352-4>.

provides a glimpse into the extent of FACCE's achievements. There remains a wealth of data that could be subjected to a more systematic evaluation, which might include mapping patents and innovations arising from FACCE-funded research, conducting bibliometric analysis (cf. FACCE's evaluation report, 2020⁵), and performing qualitative analysis to elucidate stakeholder interactions and actual impact beyond citations. Looking forward, there is considerable potential for further exploration and understanding of FACCE's impact. This can be achieved through a comprehensive evaluation, which could be undertaken within the framework of WP5 in the Monitoring and Evaluation T1, T2, T3 report. This outlook highlights the potential pathways for future research and evaluation to fully capture the scope and significance of FACCE's contributions to policy and innovation.

⁵ <https://zenodo.org/doi/10.5281/zenodo.11235376>