Capability Building for Early & Mid-Career Researchers in Europe

A scoping review for INGSA-Europe

By Dr Katie Kilian

ORCiD: https://orcid.org/0000-0003-2712-9296

Table of Contents

1. Introduction

Early and Mid-career researchers (EMCRs) are often described as an important part of Europe's science-for-policy ecosystem. However, despite normative arguments and emerging evidence about the assets and perspectives that EMCRs bring to science-for-policy spaces (SAPEA, 2024; Díaz et al., 2025; Kent et al., 2022; O'Conner, 2021; Cuellar-Ramirez, 2021) EMCRs continue to face challenges at the individual level and systemic barriers at the structural level which impede EMCRs' capacity to fully engage in policymaking (Filyushkina et al., 2022).

These barriers can be experienced directly by EMCRs as they struggle to access policy engagement opportunities, benefit from incentives or rewards at their institutions, and navigate challenges with limited time or support as they establish their careers (Washbourne et al., 2024). Barriers can also be experienced by policymakers and science advisory institutions who may lack the capacity, incentives, and established channels to engage with EMCRs (John et al., 2023). Furthermore, across Europe EMCRs engaging in science-for-policy advice are impacted by their unique local and national contexts with their own challenges and policy priorities (Shanley et al., 2022). Many capacity-building initiatives and opportunities across Europe offer training programmes, fellowships, and networks for EMCRs; however, these opportunities are not distributed evenly across countries and EMCRs are often unaware or unable to access them.

Despite structural barriers, EMCRs express a strong interest in engaging in science-for-policy advice and developing their science-for-policy skills and networks (SAPEA, 2024). This research also highlights that both EMCRs and policy spaces can benefit from EMCR involvement. Public policy benefits from the new knowledge and perspectives that EMCRs provide as this can provide new avenues of inquiry (SAPEA, 2024; O'Conner, 2021). EMCRs are also often drawn to engaging in science-for-policy work to promote social justice and are often motivated by a sense of duty to enact change (Díaz et al., 2025). The greater diversity of EMCRs and their generally higher levels of social media literacy may also allow them to bridge divides and be more influential with different audiences (Global Young Academies, 2016). EMCRs themselves can also benefit from science-for-policy work as it can expose them to a range of contexts and skills that can improve their leadership capacity, benefit their academic careers and enrich their research (SAPEA, 2024).

INGSA- Europe's 'Capability Building for Early and Mid-Career Researchers in Europe' project aims to explore the existing landscape of science-for-policy capacity building activities for EMCRs across Europe and contextualize potential opportunities for developing this capacity further. This scoping review aims to synthesize relevant academic and grey literature connected to the development of EMCRs' science policy skills and experience across Europe. This report defines Early-career researchers (ECRs) as individuals who are within the first 7 years of completing their doctoral degree (including doctoral researchers) and Mid-career researchers (MCRs) as individuals who defended their doctoral degree more than 7 years ago but no more than 19 years ago. Although definitions of ECRs and MCRs differ across Europe, this provides a baseline definition for the purposes of this report and the synthesis of academic and grey literature. This report focuses on science-for-policy in the physical sciences, natural sciences, and health sciences.

However, this project understands that science advice is drawn from a range of disciplines, including the social sciences and the arts and humanities. The decision to limit the scope to the physical, natural, and health sciences is a result of their prominence in the academic literature and existing opportunities for EMCR capacity building.

This review identifies key trends and provides several case studies of programmes across Europe to highlight existing EMCR opportunities and identify unmet needs. This project does not aim to evaluate the effectiveness of existing opportunities, but rather to map the science for policy capacity-building landscape across Europe and spark dialogue about potential directions for future opportunities as well as potential areas of development and further inquiry.

2. Research Questions

This exploratory scoping review is guided by three research questions aimed at mapping EMCR science-for-policy capacity building across Europe.

1) What types of opportunities are available for EMCR's to receive training or practical experience in evidence informed policymaking across Europe?
2) Of the types of opportunities available for EMCR's to build their capacity, what trends or gaps are visible?
3) What is needed to improve EMCRs' access to available opportunities? And which of these needs could INGSA-Europe best support?

3. Methods

3.1 Overall Approach

This review was conducted between November 2025 and February 2026 and drew on relevant academic and grey literature connected to science-for-policy capacity building for Early and Mid-Career Researchers. Scoping reviews are well suited for iterative and flexible projects which synthesize a broad range of literature to map the existing landscape (Mak & Thomas, 2022). Due to the wide scope and contextual variation of EMCR capacity-building across each nation in Europe, this strategy offered breadth in casting a wide net while also using case studies to explore contextual nuance.

Scoping reviews require researchers to engage in reflexivity as they make decisions on what data to include and navigate emerging research fields (Mak & Thomas, 2022). Drawing on feedback and stakeholder consultations with the INGSA- Europe project team and advisory board allowed me to further reflect on their decisions, interpretations, and develop further areas of inquiry.

3.2 Research Strategy

The scoping review drew on peer-reviewed articles from four databases (Google Scholar, Scopus, ScienceDirect, and Web of Science) and grey literature from academic, civil society, government, blogs, and other websites using Google search.

The academic literature review in the databases involved initial keyword searches and a screening of relevant abstracts.

Keywords: Early career researchers and science, science-policy interface and early career researchers, capacity building and early career researchers and science, capacity building and early career researchers and science policy, capacity building and early career researchers and science for policy, mid-career researchers and science policy, mid-career researchers and science capacity building, mid-career researchers and science for policy, science-policy interfaces, early stage researchers and science, early stage researchers and science policy, early career researchers and academic science policy engagement, mid-career researchers and academic science policy engagement, early career researcher and science policy mentorship, EMCR and science policy, EMCR and science advice

3.3 Review constraints

Early in the review process, the lack of evaluative academic literature on the topic of EMCR science-for-policy capacity building was established highlighting both a significant challenge and opportunity for future inquiry for the project.

Although several programmes have produced high level evaluation of their offerings in the forms of blogs, surveys, or reports which document participant experiences, this scoping review found a lack of more granular evaluation of programmes. In particular evaluation which confirms whether programmes individually or a group of programmes in a region cumulatively, have helped address the structural barriers EMCRs face when trying to engage in science-for-policy advice. This review includes the two identified academic papers that evaluate or explore existing science-for-policy EMCR programmes in the findings and includes information from grey literature on programme evaluation (blogs and post-programme institutional reports).

In addition to limited literature on the evaluation of existing opportunities, 'science for policy advice' and related policy terms appeared infrequently in abstracts. As the abstract search led to limited relevant papers, a second phase of rapidly reviewing papers was conducted to verify there was not any relevant information in papers that matched the 'EMCR' keywords. Ultimately, these reviews led to a close read of 19 peer-reviewed papers which offered insights into structural barriers, existing opportunities, and recommendations for supporting EMCR science-for-policy capacity development.

Following these phases of the review process, a non-exhaustive list of illustrative case studies of EMCR science-for-policy training opportunities was created. The aim of these case studies was to map different types of existing opportunities in more detail and explore what additional information on these programmes existed in open online spaces. While the review includes countries with well-established programmes, a key goal was to draw attention to countries with fewer formal science-for-policy advice programmes and opportunities.

The lack of relevant academic papers in this scoping review led to a reliance on grey literature. The grey literature review started with a rapid search of every country in Europe using the same keywords and the country name. The aim of this was to establish if there were any existing programmes or resources. This review was limited to English sources though several sources offered the national language (e.g. French, Danish) in addition to English on the website. This review was expanded by searching academic, civil society, government, and international programmes using Google search. The next review phase included a specific review of Doctoral Training Programmes across Europe by focusing on 10 universities that routinely place in the top 100 global universities in league tables. The aim of this phase was to ascertain if policy advice or policy training appeared in Doctoral Training Programme offerings in science PhD programmes. As I will discuss later, it became apparent that there is a disparity in the number of training opportunities for early vs. mid-career researchers which led to a further exploration of PhD programmes.

Overall, these approaches were limited by a lack of resources in existing databases and a lack of clarity and public-facing information for many programmes in the grey literature. Particularly with university websites, there was a need for institutional log ins for complete course guide access or programme information. The researcher also noted that the fast-changing university landscape may mean that websites and offerings may not be up to date. Furthermore, this scoping review was limited by the English-language bias and the non-exhaustive search process.

However, these limitations offer important insights into the science-for-policy EMCR capacity building landscape and establish unmet needs which will be explored in the findings of the review.

4. Findings of Scoping Review

The findings of the scoping review are organized into three sections:

1) Categorising types of programmes and Case study examples
2) Challenges, enablers and promising practice for supporting EMCRs
3) Identified gaps and unmet needs

Section one introduces how different types of capability building opportunities and programmes have been categorised in previous landscape mapping activities. This is followed by 13 case studies that illustrate where capability building opportunities have been developed specifically for EMCRs across Europe. These case studies are organised by typology (i.e. fellowships, internships, pairing schemes, summer schools) and provide examples of national and transnational opportunities currently available to Early and Mid-Career researchers in Europe.

Section two explores the challenges and enablers experienced by EMCRs in science-for- policy advice spaces as well as existing promising practices in academic literature.

Section three identifies gaps and unmet needs in the EMCR science-for-policy development space and revisits the benefits of supporting EMCRs to engage in science-for- policy advice as described in existing literature.

Overall, this scoping review aims to map the existing science-for-policy advice capacity building landscape for EMCRs and identify what is needed to strengthen and further develop existing opportunities.

4.1 Categorising Types of Programmes

In 2017, the American Association for the Advancement of Science (AAAS) mapped the range of mechanisms being deployed to support scientists across various career stages and disciplines to engage with policy processes and build relationships with policymakers.

This international landscape analysis mapped available science-policy connection mechanisms in a typology of four primary models: (1) fellowships, (2) internships, (3) pairing schemes, and (4) government details and rotations.

Typology of Immersive S&T Policy Connection Mechanisms

Model	Target Group	Duration	Purpose
Fellowships	Graduate STEM students Early to mid-career scientists Policymakers	Typically 1 year or longer, full time	Learn ways science impacts policy Contribute unique skill sets and expertise to policymaking Establish contacts, foster relationships, build networks Increase comfort of policymakers in working with scientists Expose scientists to policy processes and culture Explore policy-related career paths Transition to civil service
Internships	Undergraduate to graduate STEM students Early-career STEM graduates	Generally 3 months to 1 year, full time	Learn ways science impacts policy Develop awareness of policy processes and culture Establish contacts, foster relationships, build networks Explore career options
Pairing Schemes	Early-career to senior scientists Policymakers	Typically 1–2 weeks per year	Improve mutual understanding Establish contacts, foster relationships, build networks
Details and Rotations	Early-career to senior scientists Civil servants	Generally 2–4 years, full time	Deepen understanding of policy processes and culture Contribute expertise to specific issues or projects Establish contacts, foster relationships, build networks Transition to civil service

Table 1- typology of science-policy connection mechanisms from AAAS, 2017 p.2

These four models are used by a range of stakeholders (governments, universities, advocacy organisations, etc.) for connecting scientists to policy and decision-making and feature prominently in the landscape of capability building initiatives for Early and Mid-Career Researchers in Europe. This scoping review also identified additional types of opportunities including workshops, conferences, unconferences (non-hierarchical and participant-driven meetings), forums, seminars, mentoring (formal and informal), transnational/regional mobility

schemes, and doctoral training programmes which are helping to diversify the range of opportunities available and may make science for policy engagement more accessible.

However, in reviewing existing fellowships, initiatives, and programmes across Europe, this project finds that many do not focus on science for policy (science advice) specifically, but rather developing science infrastructure, trying to avoid brain drain, and addressing localised science concerns. Furthermore, programmes that do focus on science for policy are often open to all researchers rather than targeted for EMCRs. Ecology, environmental science, and climate change disciplines have the greatest representation in science policy spaces and support for EMCRs, and the majority of existing opportunities identified are concentrated in the UK and Switzerland (although the English language bias may have filtered out key opportunities and EMCRs may engage in programmes that are not specifically designed for them). This EMCR science-for-policy capacity building landscape highlights the need to learn more about existing programmes across different institutional, local, national, and transnational contexts which this report begins to explore through case studies across Europe.

4.2 Case Studies

This section includes 13 case studies which illustrate the different types of science for policy capability building opportunities available to EMCRs across Europe. Case studies include the four types of programmes outlined in the AAAS 2017 report to show how they have been deployed in a European context while also showcasing examples of the additional programmes and opportunities this review identified (i.e. fellowships, summer schools, conferences and doctoral training programmes).

As mentioned, the aim of the case studies is not to provide a complete list of available opportunities for EMCRs across Europe but to illustrate the range of programmes that have been developed with some level of detail, particularly in countries where formal science-for-policy training programmes and opportunities are more limited. These case studies use the language from programme websites and resources to show how these opportunities are presented to EMCRs in publicly available websites.

4.2.1 Fellowships

Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Fellowship Programme

Type: Fellowship

Topic: Biodiversity and Ecosystem Assessments and Science-Policy Interface

Funding: The fellowship scheme is unpaid, and fellows are expected to work pro bono. The cost of attending meetings will be covered for fellows from developing countries and countries with economies in transition. Fellows from developed countries are expected to cover their own expenses.

Format: Workshops and mentoring which cover knowledge/skill topics-(i) the IPBES's organization and its function as a science-policy interface, (ii) the IPBES's conceptual framework and theories and methods from diverse scientific disciplines (iii) knowledge gaps in the field of biodiversity and ecosystem services, and (iv) practical knowledge on how to balance parallel responsibilities. Fellows are paired with a senior expert who will act as a mentor.

Evaluation Method: qualitative survey of fellows in the first cohort of the IPBES's fellowship programme (2018), interviews with fellows in the second cohort of the IPBES's fellowship programme (2018-2019), and an interview with a representative from the IPBES's Technical Support Unit (TSU) on capacity building (2019)

Evaluation: "The IPBES has … thus far, neglected to build capacities on the policy side of the interface, resulting in science and policy to develop separate parallel practices within the IPBES

instead of developing enhanced and strengthened interactions and collaborations between the two in the field of biodiversity and ecosystem service".

Source: Gustafsson et al. (2020)

Parliamentary Office of Science and Technology (POST) Fellowships (UK)

Type: Fellowship

Host Institution: UK Parliament

Participants: 35 doctoral student fellows and postdoctoral researchers from STEM fields, including social sciences

Funding: The UK Parliament provides infrastructure support (office space, desk, technology, human resources, and costs for research such as travel and conference fees) along with training, supervision, and access. Each fellow's institution provides the three-month stipend and either regular travel to London or accommodation in London.

Format: POST runs fellowship schemes that enable doctoral students to spend time immersed in the office's activities. In addition, POST places some fellows with the Research Libraries U.K., and select committees of both houses of Parliament. The majority who are placed with POST will research, write, and publish a "POSTnote"- a four-page briefing paper that summarizes research evidence and places it in a policy context for parliamentary use. All POSTnotes are circulated to parliamentarians, made available around the parliamentary estate (both on release and to match topical parliamentary activity) and are published online, freely available to all, including the public. Many POST fellows help organize briefing breakfasts, seminars, workshops, and conferences at which academic experts engage directly with parliamentarians to explore policy relevant evidence and discuss solutions to policy problems.

Aims: The UK Parliamentary Office of Science and Technology is the internal source of scientific advice in the UK Parliament. POST runs several programs in partnership with the country's research councils, learned societies, and charities, through which PhD students are sponsored to spend approximately three months immersed in a policy-focused assignment. Some fellowships are also open to postdoctoral researchers.

Source: AAAS Report (2017)

4.2.2 Internships

UK Research and Innovation Policy Internship Scheme

Type: Internship

Topic: Policy

Host Institutions: various institutions

Location: UK

Participants: 125 UKRI-funded doctoral students per year

Aim: During their internship, the student undertakes training and experience on a policy topic agreed with their host partner that is relevant to both parties. At the end of the internship, the student is expected to have produced a briefing paper, participated in a policy inquiry and/ or organised a policy event. The intention of the scheme is to embed students in an environment where they can engage with the process of converting research outputs into policy. These internships equip students with transferable skills and training relevant to the future career paths that the student may choose.

Format: three-month placement at one of a selected group of influential policy organisations

Funding: Research Councils and host partners

Feedback: Case Study, Blog from 2024, Blog from 2025

Source: UKRI Policy Internship Scheme (2025)

4.2.3 Pairing Schemes

European Parliament MEP-Scientist Pairing Scheme (EU)

Type: Pairing Scheme

Host Institution: EU Parliament

Participants: 16 pairs- Members of European Parliament (MEPs) and scientists

Funding: European Union

Format: To support the development of relationships between MEPs and scientists, the European Parliament operates MEP Scientist Pairings. Through their introduction to a network of scientists and researchers, MEPs gain an enhanced awareness of scientific processes and discovery, along with a better understanding of the scientists' points of view on policy issues. Scientists learn how to interact effectively with politicians and how to proactively inform them in fields of mutual interest, as well as contribute to the dissemination of information to universities and other scientific institutions on the structure and implementation of relevant European policies and programs. Scientists are invited to Brussels to shadow and assist MEPs in their daily political activities, allowing them to observe EU science, technology, and research policy players in action. As a follow-up, the pairs are encouraged to collaborate in organizing an event, with a European dimension, on a topic of their choice.

Aims: Jointly organized and managed by the Science and Technology Options Assessment at the European Parliament and the European Commission, these schemes pair Members of European Parliament (MEPs) with scientists to build relationships through experiencing each other's professional world and day-to-day activities.

Source: AAAS Report (2017)

Royal Society Pairing Scheme (UK)

Type: Pairing Scheme

Host Institution: Royal Society, Academic Institutions, UK Parliament

Participants: STEM scientists with at least two years of postdoctoral research experience, matched with MPs

Funding: Royal Society

Format: The scheme begins with a "Week in Westminster," during which the pairs first meet. Over this week, the scientists take part in workshops, hear from invited speakers, and spend two days in their shadowing role. After this first week, the parliamentarians and civil servants have their turn

to gain insight into the world of research, undertaking reciprocal visits at their respective pairs' academic institutions.

Aims: The Royal Society selects 30 scientists every year to spend a week in Westminster learning how Parliament works by shadowing a partner MP or senior civil servant. A reciprocal visit takes place later when MPs visit the research institutions. This scheme gives policymakers an opportunity to better understand the use of evidence in policymaking and provides scientists with direct insight into how policy develops, how research findings can help inform policymaking, and an overall enhanced understanding of how they can get involved.

Source: AAAS Report (2017)

AAAS & TWAS Summer Science Diplomacy Course

Type: Pairing Scheme (5 days over the summer)

Topic: Science Diplomacy and Policymaking

Host Institutions: This course is organized by the American Association for the Advancement of Science (AAAS) and The World Academy of Sciences (TWAS). It is hosted at TWAS in Italy during the summer.

Participants: Open to participants across the world in pairs- Participant 1: a Early-Career Scientist (ECS) who should be preferably 40 years or below, must have earned a PhD degree and whose research and wider engagement has international policymaking implications or applications, and Participant 2: a Decisionmaker (DM) from the policymaking arena, working on science, technology, and innovation-related matters

Since 2021, 144 scientists and decisionmakers from 50 countries have attended the course

Funding: priority and full funding for Science & Technology Lagging Countries (STLCs) and Least Developed Countries (LDCs)- transportation, accommodation, visa processing fees, meals and incidentals; small number of self-supported participant pairs (including from high-income countries) to attend the course if selected who are responsible for paying their costs except for meals and transportation within Trieste.

AAAS funds this programme through a grant from the Golden Family Foundation, as well as through a contribution to TWAS from the Swedish International Development Cooperation Agency. Other financial support comes from Organization for Women in Science for the Developing World (OWSD) and the InterAcademy Partnership (IAP), both of which have sponsored participant pairs—a model that could be extended to other organizations, governments, or private foundations. In addition, participant pairs from high-income countries have often been sponsored to attend by their institutions and/or governments.

Format: three workshop days, five days in Italy

Aims: develop transnational long-term collaborations on science diplomacy-related initiatives

Feedback: In 2023, "all respondents rated participating as a pair "positive" or "very positive." The vast majority praised the model as a way for them to better understand the different dimensions of each topic discussed, learn from their partner's expertise, and appreciate how their skills complement each other. Most commented positively on their interaction with other pairs, with some saying that this was one of the most valuable parts of the course for them as it allowed them to better understand the state of science and technology in other countries. In June 2024, AAAS-TWAS surveyed the participant pair alumni (excluding the 2024 participants) to track the progress on their plans. Of the respondents, 95% are still in touch with their course partner, with 40% talking to one another at least once a month. Additionally, the participants reported consulting with one another on topics of mutual interest; several scientist participants have invited their partner to academic events or shared their latest publications with them, and decisionmaker participants have assisted their scientist partner in understanding and navigating policy regulations related to the scientist's research. Even in this short time frame, the survey found that, in some cases, the partnership had already led to a joint project. Of the 37 survey respondents, 18 pairs had made progress on the ideas outlined in their joint statement of collaboration and 13 pairs had produced a deliverable (see Figure 1). Notably, one participant pair is currently setting up a course on science diplomacy at the scientist's institution, and the decisionmaker of the pair—who works for the national government—has invited the scientist to work on a national science diplomacy study in which the decisionmaker has a leading role. Participants from different years have also benefitted from interacting with each other. In one case, four participants from Latin America teamed up for the publication of a white paper issuing recommendations for a science diplomacy strategy to safeguard the Amazon, inspired by a deliverable created during the course" (Ortiz Calva et al., 2024).

Source: AAAS-TWAS Course on Science Diplomacy site (2026)

4.2.4 Summer Schools

'Science and Policy: How to Bridge the Gap' Summer School in Switzerland, 2023

Type: Summer school

Host Institution: ETH Zurich and EPFL - Swiss Federal Technology Institute of Lausanne

and funded by two public universities in Switzerland: ETH Zurich and

Participants: 30 PhD students in Natural Science and Engineering (20 spots were reserved from students from the funding universities and the rest were open to other European universities)

Length: 5 days in 2023

Format: This summer school was organized by five PhD students in Switzerland. Each day was organized around a topic (e.g. Science for Policy, Open Science, Public Engagement) with a 45-

minute slot for a speaker with time for questions and a workshop. There was also an outdoor collaborative and networking activity one day.

Collaborators: 28 speakers from Swiss universities, a research institute, governmental bodies, Swiss Young Academy, UNESCO, private companies, and a think tank

Survey Evaluation: 69% of participants were encouraged to focus on the science-policy interface in the future, 20% were discouraged, 10.3% status had not changed

Source: Chanvillard (2024)

"Science for Policy: Building Capacity in the Mediterranean"- Spain

Type: Summer Training Programme (two days)

Topic: Evidence-informed Policymaking

Host Institutions: Union for the Mediterranean (UfM), European Commission's Joint Research Centre (JRC) and the National Office for Science Advice of Spain (ONAC)

Location: Spanish Prime Minister's Office in Madrid

Participants: 25 early-career researchers and scientists from across the Euro-Mediterranean region

Aim: enhance ECR engagement in evidence-informed policymaking, foster regional integration through strengthened science-policy cooperation, responds to the increasing demand for scientific advice in tackling Mediterranean-wide challenges, including climate change, water scarcity, energy transition, and health resilience

Format: Participants explored the dynamics of policy processes, practiced communicating scientific knowledge to non-specialist audiences, and engaged in interactive workshops that simulated real-world decision-making scenarios. Sessions were facilitated by policy experts from the JRC who have worked at the science-policy interface

Funding: Provided by Union for the Mediterranean for sponsored participants

Sponsored Participants: 20 participants will be fully sponsored by the Union for the Mediterranean, covering travel and accommodation expenses. Preference for participants from non-EU UfM member states (South and East Mediterranean). Self-Sponsored Participants: 5 seats for self-sponsored participants.

Source: UFM Secretariat "Science for Policy: Building Capacity in the Mediterranean" site (2025)

4.2.5 Conferences and Unconferences

Young Academies for Scientific Advice Structure - European National Young Academies (ENYA) Meeting

Type: Meeting/Conference (two days)

Topic: Science Diplomacy, evidence-informed policymaking, and the inclusion of researchers in global decision-making processes

Host Institutions: Rotating hosts- Swiss Young Academy (2025), next year Poland Young Academy (2026)

Location: Bern, Switzerland (2025)

Participants: Young Academy researchers across Europe

Aim: enhancing cooperation among national young academies and emphasizing the pivotal role that early- and mid-career researchers can play in shaping open, inclusive, and collaborative scientific ecosystems in Europe and beyond; developing Science Diplomacy as a key enabler of international cooperation, evidence-informed policymaking, and the inclusion of researchers in global decision-making processes

Format: thematic sessions, interactive workshops, and policy-focused discussions

Funding: national governments, Global Young Academy, European Parliament

Outcome: Report which includes summary of a selection of educational offers in science for policy and diplomacy

Source: Swiss Young Academy site (2025b)

4.2.6 Doctoral Training Programmes

This case study is a table comparison of science doctoral training programmes across Europe. In reviewing existing university training offerings, policy is rarely mentioned or showcased as a key focus of doctoral training. There is some mention of 'impact' or 'entrepreneurship and commercialisation' (e.g. University of Lisbon's 'ScienceIN2Business'), but this is also not common.

This case study draws on a search of publicly available training and module offerings from doctoral training programmes at 10 universities that rank in the top 100 Global Universities (QS World University Rankings). The aim was to map a range of countries across Europe; however, only one country in southern or eastern Europe featured in the top 100 rankings (Politecnico di Milano in Italy at #98).

University Name	Explicit Mention of Policy on Website	Policy-specific Science PhD Programme	Training or Module with Policy Focus
Imperial College London (UK)	X	X	Policy Course (Year 1)
Oxford (UK)	X	X	'Life Skills for Scientists' Module for Interdisciplinary Science DPhil- This one-week module includes sessions delivered by representatives who work in different careers (e.g. publishing, IP, teaching, industrial research, policy, academia).
Cambridge (UK)	X	X	X
ETH Zurich (Switzerland)	X	Science Policy PhD	Evidence-Based Policymaking (2 days + case study work = 60 hours), Building Political Support (3 days + case study work = 60 hours), Stakeholder Engagement (3 days + case study work = 60 hours), Understanding Policy Evaluation (2 days + case study work = 40 hours), Systems Thinking & Design for Social Change in Policymaking (3 days), Analysis & Communication of Risks and Uncertainties (3 days + case study work = 60 hours)
University College London (UK)	X	Science, Technology, Engineering and Public Policy MPhil/PhD	X
Université PSL (France)	X	X	X
Technical University of	X	X	X

Munich (Germany)			
Delft University of Technology (Netherlands)	X	X	X
KU Leuven (Belgium)	X	X	X
Politecnico di Milano (Italy)	X	X	Science Diplomacy for Researchers: Filling the Gap Between Science and Policy within the Global Challenges (5 credit); Perspectives in Science, Technology, and Policy of Sustainable Change (5 credits)

4.2.7 Combination of Different Training Elements

This section includes opportunities that do not neatly fit into the typologies identified in section 4.1 but rather combine different elements of training.

Joint Research Council's Collaborative Doctoral Partnership (CDP) programme

Type: Doctoral Partnership Programme- Joint Research Projects + Doctoral Training

Topic: Joint research projects on science-policy interface

Host Institutions: Joint Research Centre of European Commission, higher education institutions across EU

Location: 6 JRC sites across 5 EU countries (for up to two years) plus over 40 partner universities across Europe

Participants: PhD students

Aim: JRC benefits from fresh academic perspectives and strengthens ties with the scientific community, universities gain access to the JRC's cutting-edge facilities and policy-relevant expertise; and doctoral candidates enjoy high-quality training at the science-policy interface, increasing their impact and employability

Format: HEIs/universities and the JRC jointly design, host, and supervise doctoral research across the JRC portfolios

Funding: each institution covers the cost of the doctoral candidate according to their stay at the respective institution. Doctoral candidates will be covered with a single 'Grantholder Category 20' contract during their stay at the JRC, with a duration of one to two years.

Source: JRC Doctoral Partnership Programme site (2026)

Swiss Young Network for Science Policy and Diplomacy (SYNESPOD)

Type: Network involving workshops, forums, and partnerships

Topic: Science Policy and Diplomacy

Host Institutions: Swiss Young Academy, Geneva Science-Policy Interface and the Franxini Project by Reatch

Location: Switzerland

Participants: researchers in Switzerland

Aim: creating and strengthening a network for science policy and diplomacy

Format: Workshop Example "Science-Policy Interface for Scientists: An (Inter)national Perspective" in 2025 for 30 attendees- Participants were introduced to science for policy and the role of science and research in multilateral policy; understand mechanisms and strategies to work at the science-policy interface; learn different ways of policy engagement; become familiar with the basics of the Swiss political system; understand the distinct roles of researchers in the national policy making process; get to know the relevant intermediary actors between research and politics in Switzerland and globally; learn to translate their research for political and public discourse

Funding: free for participants- funded by Swiss Young Academy, Geneva Science-Policy Interface, Franxini Project

Source: Swiss Young Academy site (2026)

Western Balkans Mobility Scheme- Policy Answers Scheme

Type: Regional Mobility Scheme

Topic: Science Policy Research

Host Institutions: Home research institution in the Western Balkans

Location: Western Balkans- Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia

Participants: PhD students and ECRs (no more than 7 years into career)

Aim: Organising policy dialogue events (i.e. Ministerial and Steering Platform meetings; ad-hoc policy coordination meetings), offering room for exchange about policy implementation; Carrying out analytical activities such as mapping of relevant institutions, programmes, initiatives, needs and common priorities in the Western Balkans (WB); monitoring ongoing activities at different levels related to the implementation of the WB Agenda and progress made related to ERA integration; providing strategic informed recommendations for policy making and agenda setting; Providing and coordinating capacity building and pilot actions in the WB to contribute to the region's EU integration process and to strengthen their innovation ecosystems; Designing informed policy recommendations to decision-makers in the region in the areas of R&I, Education, Culture, Youth and Sport in addressing the EU's key priorities such as digitalization, green economy and health and aligning them; Implementing regional pilot activities, which reach out directly to academia, industry and civil society; creating new initiatives and initiating success stories at programme level; Supplying an information hub and web platform addressing R&I, Education, Culture, Youth and Sport in the WB to enable better information sharing, create opportunities for joint actions and bring up the WB to EU policy-making.

Format: Science policy research project- must comprise the physical presence of an early-career researcher as the recipient of the financial support for a duration of between two weeks and two months at a location in a different WB economy, that allows access to a research infrastructure. The overall duration of the project must be between two weeks and six months, which allows enough time for the impacts of the results of the mobility.

Funding: Horizon Europe- budget of EUR 100,000- maximum sum of EUR 5,000 per project. The funding will be given as non-refundable grant in two instalments, with a first share as pre-financing (75%), and a second share after approval of the final report (25%)

Eligible costs are supported by an "allowance unit cost" of EUR 75 per day of the stay – resulting in EUR 2,250 per month (30 days) – to compensate for all travel costs and living allowances of the recipient (including cost for visa etc.); any cost that occurs at the host institution like accession fees, consumables etc.; costs for dissemination and impact of project results (visibility, publication of scientific article, etc.)

Source: Western Balkans Info Hub (2026)

5. Challenges, Enablers, and Promising Practices for EMCRs

This report now turns from case studies of existing EMCR science-for-policy capacity building opportunities across Europe to research on the experiences of EMCRs. This section focuses on the challenges experienced by EMCRs, the benefits and enablers of EMCR science-for-policy work, and promising practices for engaging in this work.

EMCRs are uniquely positioned as the "first generation of scholars to be socialized towards the value of academic research beyond academia" (Wróblewska et al., 2024) and show a strong desire to engage in science-for-policy advice and to enact social change (Filyushkina et al., 2022). However, EMCRs as "knowledge producers and brokers in policy spaces are notably absent from both empirical and 'how to' literatures (with the exception of Evans and Cvitanovic, 2018)" (Weakley & Waite, 2023). In research settings, ECRs in particular exist in a liminal space and have been conceptualized as 'invisible scholars' (Fenby-Hulse et al., 2019). This section aims to analyze the current context experienced by EMCRs with a focus on challenges they experience as well as potential enablers and best practices in science-for-policy work.

SAPEA's (2024) report on EMCRs across Europe highlighted common barriers and challenges including balancing science-for-policy work with the demands of their careers, the climate of uncertainty and precarity (both personally and in university settings), high mobility, time poverty, 'publish or perish' culture and the neoliberal context of managerialisation, marketization, and internationalization in universities, and the lack of reward structure or incentives for science-for-policy work. Although EMCRs want to contribute to science-for-policy advice, they perceived no or few opportunities for them to engage with policymakers (Filyushkina et al., 2022), a lack of transparency on how to develop skills and access information in these spaces (Vanholsbeeck, 2022), and a lack of awareness of existing opportunities (Washbourne et al., 2024). Opportunities for science-for-policy work tend to go to more established academics (SAPEA, 2024), and uneven power dynamics are a key challenge for EMCRs as their positionality (particularly their lack of 'status') can act as a barrier to engaging in science-for- policy advice (Weakley & Waite, 2023) and can lead to a general lack of confidence (Washbourne et al., 2024).

Another critical challenge is the significant need for skills development (Mauduit & Soler, 2020), capacity building, mentoring, and financial support for EMCRs (Cuellar-Ramirez, 2021). Guidance, training, and mentoring for EMCRs is limited and Wróblewska et al. (2024) contend that "traditional forms of mentoring may not be as reliable, as the entire research community remains uncertain of the definitions, and avenues for achieving successful impact". However, mentoring is crucial, especially for women, parents, and racial or ethnic minorities who leave STEM fields as early career researchers at an excessively high rate (Gibson et al., 2020). Research on STEM ECRs and mentoring in the United States shows that "effective mentoring can combat the ongoing pressures that underrepresented individuals face due to implicit bias by colleagues and supervisors, macro- and microaggressions, stereotype threats felt by the mentee in toxic biomedical training environments, and social isolation in part due to underrepresentation within the field" (Diggs-Andrews et al., 2021). Although these issues clearly cannot fully be addressed without systemic change, their research highlights the importance of directly addressing race, gender, and class in ECR mentoring relationships as "the historically advantaged population do not recognize the unique experiences of those who are overlooked because of institutionalized discrimination and unconscious bias". In addition to mentoring, there is a need for more general capacity building and training for EMCRs in science-for-policy spaces. SAPEA's (2024) survey of EMCRs found that 58% of respondents reported receiving no formal training in science advice and only 30% of

respondents reported feeling competent to engage in science advice based on their training. The lack of opportunities and training at academic institutions for EMCRs is a significant challenge and John et al. (2023) note that "even in cases where these resources exist, they are often only modestly funded, U.S.-centric, and lack real-world experiential training".

The lack of incentives, rewards, or recognition for science-for-policy work in universities is another key barrier for EMCRs. SAPEA's report (2024) showed that less than a third of respondents received institutional support, recognition or other incentive for engaging in science-for-policy activities. This is corroborated by Holmes-Henderson & Lewin's (2025) UK-based investigation which found that "policy engagement is entirely absent from progression and promotion policies" of the universities in their study and that "not many institutions highlight policy engagement in their mission or strategy documents". The lack of clear incentives and rewards in university promotion policies can make engaging in policy advice work a 'dangerous gamble' rather than following traditional pathways for career progression highlighting the potential risks for EMCRs. This study further found that "instances of clear and successful policy engagement impacts are rarely rewarded or celebrated".

5.1 Benefits, Enablers and Promising Practices

Although significant structural barriers exist for EMCRs who seek to work in science-for-policy spaces, existing research also highlights some benefits, key enablers, and best practices. Engaging in science-for-policy work can benefit those who may later choose to leave academia to be better informed about other opportunities and career paths. There are also enablers which allow EMCRs to effectively engage in science-for-policy work. In their autoethnography of their experiences as ECRs, Weakley & Waite (2023) share that science-for-policy spaces that engage in informal group leadership rather than hierarchical leadership was an enabler allowing the ECRs to more effectively engage in science for policy without relying on 'gatekeepers'. They further note that ECRs can develop and use interpersonal and relationship management skills to exercise greater agency. Furthermore, policy groups in local and more 'variegated' contexts which involved third sector stakeholders allowed ECRs to offer more critical and cross-sectoral policy ideas (Weakley & Waite, 2023). In addition to these enablers, existing research also offers some guidance on best practices for EMCRs. Evans and Cvitanovic (2018) offer the following guidance for EMCRs:

- Learn about the policy process, identify who is involved in the policy process, and explore how policy looks in practice
- Track media surrounding your policy context
- Take time to observe, listen, and learn about policy spaces before engaging in policy work
- Build a public profile, use social media, informal channels, blogs to disseminate research ideas
- Identify the motivations for engaging in policy work and create SMART policy impact goals (Specific, Measurable, Achievable, Relevant and Time-bound)
- Build relationships, diverse networks, and seek out mentors

- Engage in existing internships, fellowships and other science policy opportunities

In addition to this guidance, Evans and Cvitanovic (2018) provide reflection questions for EMCRs as they start working in science policy spaces:

- Who might be interested in, benefit from, or be impacted by my research?
- Why would my research be of interest to these actors?
- What aspects of my research are most relevant to these actors (which parts of my research align with their goals)?
- How do each of these actors interact with others (what degree of influence do they hold)?

Wang et al. (2022) also offer recommendations for EMCRs:

- Actively seek out science-policy opportunities and training
- Embrace complexity in science policy work
- Be succinct, reduce technical complexity, avoid jargon, and place the issue in the relevant policy context when possible
- Develop networks and build rapport,
- Raise awareness of science-policy interface work

Although these recommendations do not break structural barriers for EMCRs, they can provide some direction and a baseline level of support. Vanholsbeeck (2022) argues for the creation of "early career building information ecosystems" (ECBIE) which connect mentoring and learning through pathways, information-sharing, and creating opportunities. This project and further extensions of this work could contribute to this endeavour. Diggs-Andrews et al. (2021) also encourage the creation of mentoring networks and specifically promote ECRs having multiple mentors and engaging in 'mentoring up'; their research promotes "ideal mentoring networks [which] consist of near-peer, peer, and established professional mentors.

Shanley et al. (2022) also argue that EMCR capacity building should include attention to localized needs and concerns and involve participatory work and experimentation with new practices. Díaz et al. (2025) promote co-production of science knowledge with local communities and the expansion of EMCR networks. Rölfer et al. (2022) also encourage knowledge co-production while also acknowledging the challenges for ECRs engaging in these approaches (the majority of which are institutional) and the responsibilities of institutions to adequately support ECRs through funding, courses on soft skills and engaging with policymakers, "different evaluation of output which is not measured in research publications, but rather in products that benefit non-academic actors" and a "recognition and acceptance of 'non-traditional' inter- or transdisciplinary science and scientists".

Finally, John et al. (2023) provide a succinct table of barriers and potential mitigation actions to engaging ECRs in science policymaking.

Table 1: Summary of barriers to early-career scientists' engagement in policy-making and potential mitigation actions to be addressed by senior scientists, academies, and other stakeholders in the science-policy interface.

Barriers	Potential Actions
Social and cultural • Marginalization of early-career scientists • Hierarchical structures • Lack of trust and recognizing early-career scientists as stakeholders	• Recognize early-career scientists as stakeholders • Provide equal responsibilities to early-career scientists in committees and boards (e.g., voting rights)
Political • Lack of access, opportunities, and support • Negative political environment (not open to scientific advice) • Limited two-way communication between science and policy	• Support mechanisms for scientific advice • Create platforms for exchange with policy-makers • Strengthen interface bodies for an effective two-way communication (for instance via Chief Scientific Advisors)
Institutional • Lack of training in science communication • Lack of mentorship • Excessive formalities in decision-making processes • Differences between the goals of scientists and policy-makers • Assessments and promotion criteria; lack of visible professional reward (compared to publications, conference presentations)	• Train early-career scientists in science communication with policy-makers and vice versa • Mentor early-career scientists • Communicate decision-making engagement channels • Recognize, value and encourage participation in science-policy interface initiatives in the promotion criteria • Challenge academic structures to recognize societal impact
Personal • Lack of role models of early-career scientists in policy-making • Underappreciation of scientific competencies and lack of confidence in own expertise • Perceptions about the complexities of getting involved • Professional instability and lack of funding and time	• Teach and promote role models in science-policy advice in the same way as careers in academia or industry • Establish programs for fostering the involvement of scientists • Train early-career scientists in science communication • Provide funding mechanisms for transdisciplinary research
Complexity of political decision-making • Complex coordination across sectors and actors to build consensus for action among diverse interests, and inform strategy setting • Complex implementation and cooperation between countries and regions; timing and stringency of governance	• Provide training and streamline processes so that new stakeholders can meaningfully contribute to policy-making • Emphasis on capacity building, finance, governance, and technology transfer

These mitigation actions can serve as a potential starting point for future work and policy recommendations geared towards supporting EMCRs and building capacity.

6. Identified Gaps and Unmet Needs

Building science-for-policy capacity among Early and Mid-Career researchers across Europe is an emerging and fractured area of academic research with limited peer-reviewed sources. Due to the fractured nature of research on this topic, this section begins by exploring the rationales for and benefits of supporting EMCRs within existing science-for-policy work in academic and grey literature. An important finding of this report is that, although the literature consistently highlights the benefits of supporting EMCRs, this argument has not been sufficient to cause systemic change to address the challenges EMCRs are facing in their institutions or widescale investment in science for policy capacity building efforts across Europe as a whole.

A key value of supporting EMCRs to engage in policymaking is their potential to contribute diverse perspectives, new methodologies, and openness to innovations which enriches policy (SAPEA, 2024; Díaz et al., 2025). EMCRs are more diverse (age, sex, gender identity, sexuality, race, ethnicity, disability, culture, socioeconomic status, language, national origin, and geography) than senior academics which can bring creative solutions (Kent et al., 2022) and EMCRs can offer fresh

perspectives and distinct knowledge contribution (O'Conner, 2021). EMCRs also show interest in cross-disciplinary and sustainable research which offers a more 'more holistic vision' with greater collaboration (Cuellar-Ramirez, 2021). EMCRs can also "act as intermediaries/bridges between established and nascent research communities" bringing further partnerships and collaboration as well as higher levels of social media literacy and engagement (Global Young Academy, 2016). In addition to enriching scientific knowledge and partnerships, some EMCRs also are actively engaged in working towards greater social justice, supporting the environmental movement, and in working towards new forms of governance and policy which aim to end structural inequalities, build resilience, and democratize science (Cuellar-Ramirez, 2021). Together these rationales may justify developing additional support for EMCRs engaging in science-for-policy work. However, these arguments have not yet been successful in convincing policymakers or other decision makers to include EMCRs more or systemically invest in capacity building. Furthermore, the comparison of university training opportunities highlights that supporting EMCRs in policy engagement work is not a key focus of existing supports and development. This review raises questions about why existing literature has been unsuccessful at shaping policymaker and university priorities in developing science-for-policy capacity with EMCRs and highlights a potential unmet need to brainstorm and develop new approaches to both encourage systemic support for EMCRs and to learn what new approaches might best support this work.

This exploratory scoping review did not find any academic literature specifically on mid-career researchers and science policy capacity building (though one paper on mentoring and developing mid-career scientists more broadly was reviewed- Kahn & Esposito, 2025). The similarities and differences in science-for- policy capacity-building between ECRs and MCRs is not explored in leaving a gap in understanding each groups' unique positionalities and needs. Kahn & Esposito (2025) assert that "issues concerning mid-career scientists tend to be more individual and specific than those most commonly facing early career scientists" meaning that they may require more specific expertise in mentoring and capacity-building. There are also fewer identified opportunities which include mid-career researchers.

Another gap in existing literature is a contextual approach to identifying EMCR capacity-building needs across different European countries, regions, and localities. In reviewing grey literature, the scoping review identified clear local challenges and priorities such as the need to build infrastructure, popularize science research, and minimize brain drain (notably in southern and eastern Europe). The scoping review also identified the potential need for an intersectional approach in EMCR capacity-building as identities such as gender, ethnicity, race, and language are all salient in EMCR experiences in science-policy spaces and the wider academic and research landscape (SAPEA, 2024).

Additionally, the mapping of existing opportunities for capacity-building remains sparse. The Swiss Young Academy report (2025a) 'On Science for Policy and Diplomacy Education in Switzerland and Beyond: A Brief Overview' provides some mapping of existing capacity building opportunities in Switzerland, Europe, and globally (see table below), but there remains no centralized European or global database with opportunities and programmes.

Program	Institution	Format	Location	Cost	Eligibility
Europe					
→ Collaborative Doctoral Partnership Program	**JRC**	**PhD exchange program**	**JRC site (TBC)**	**Salaried Position**	**PhD student in relevant field at partner HEI/university**
→ Evidence for Policy Schools	**JRC**	**Short course**	**Online**	**Free**	**For scientists and policymakers**
→ E-Learning Resources	JRC	Short course	Online	Free	Publicly available
→ Dual Degree in Environmental Science and Policy with Sorbonne Université	Sciences Po	Masters degree	Paris, FR	Paid*	Bachelors in science or engineering, English proficiency
→ Evidence-Based Policy Research Methods	UNU-Merit	Course	Online or Maastricht, NL	N/A	Designed for working professionals
→ Science Diplomacy in Times of Conflict (2023)	Sciences Po	Short course	Paris	Free	N/A
→ Knowledge Brokers Academy	UCL	Program	London, UK	N/A	UCL academic and professional services staff
→ Generating Evidence for Policy and Practice (2022)	STEPPS	Short course	London, UK	Paid	Policy workers, academics, researchers
→ Knowledge Brokering between Research and Government (2021)	STEPPS	Short course	Online	Paid	Policy workers, academics, researchers
→ Multilateralism Training	UNITAR	Various	Various	Various	Various
→ Public Policy Engagement Online Series	UCL	Short course	Online	Free	Publicly available
→ European Science Diplomacy Online Course	**S4D4C**	**Short course**	**Online**	**Free**	**Publicly available**
→ Science and Technology Diplomacy Summer School	SciTech DiploHub	Summer school	Barcelona, ES	Paid	Graduate degree holder, 3-5 years of experience in research, international relations or project management

As such, more comprehensive mapping and further exploration of doctoral training programmes, as well as institutional incentives and support for early- and mid-career researchers interested in science–policy advice, represent a potential unmet need.

7. Implications & Conclusion

This scoping review aimed to identify types of opportunities available to EMCRs who engage in science-for-policy work, map the EMCR capacity-building landscape across Europe, identify trends or gaps in provision, and identify what could improve EMCRs' access to opportunities. Through engaging with academic and grey literature, this report found:

- EMCRs add value to science-for-policy work by contributing diverse perspectives, new methodologies, being open to innovations as well as cross-disciplinary and sustainable research, and acting as bridges between research communities
- EMCRs experience challenges and barriers in engaging in science-for-policy work including the climate of uncertainty and precarity (both personally and in university settings), high mobility, time poverty, the neoliberal context of managerialisation, marketization, and internationalization in universities, and the lack of reward structure or incentives for science-for-policy work
- EMCRs want to contribute to science-for-policy advice, but perceive no or limited opportunities to engage with policymakers, a lack of transparency on how to develop skills, and a lack of awareness of existing opportunities
- Existing research shows some key enablers and best practices in supporting EMCRs in science-for-policy spaces including mentoring, promoting the co-production of scientific

knowledge with local communities and the expansion of EMCR networks; however, structural inequities and barriers remain a concern

- There is limited comprehensive mapping of the existing EMCR capacity-building landscape across Europe due to a lack of academic and grey literature on this topic and a lack of central databases of opportunities which are often difficult to maintain
- This suggests a need for improved visibility and coordination of initiatives and highlights the value of existing efforts to signpost initiative as this report and the Swiss Young Academy report (2025a) 'On Science for Policy and Diplomacy Education in Switzerland and Beyond: A Brief Overview' have started to do, but also acknowledges the challenges associated with developing and consistently updating this type of resource
- The landscape of EMCR capability-building across Europe appears fragmented and uneven. Opportunities exist in a range of formats, and the benefits of different types of opportunity can be difficult to determine due to a lack of systematic mapping and evaluation. Opportunities are additionally concentrated in a small number of high-income Western European countries, notably the United Kingdom and Switzerland.
- Many EMCR training opportunities do not focus on science for policy specifically, but rather developing science infrastructure, trying to avoid brain drain, and addressing localized scientific concerns
- Where programmes do focus on science for policy, they are often open to all researchers rather than targeted for EMCRs or their specific learning needs
- Doctoral training programmes across Europe rarely include explicit science-for-policy or policy-advice components highlighting a potential area for future development
- Opportunities for mid-career researchers are particularly limited, and the literature provides little insight into the distinct needs and positionalities of this group.

These findings begin to illustrate the range of science-for-policy capacity building opportunities for EMCRs across Europe but highlight an ongoing need for more robust evidence (i.e. detailed evaluations, cohort studies, autoethnographies/ethnographies) to scale up what works and understand the nuance of different national and local policy contexts and EMCR career trajectories. Such further work should include investigations of the way that different individual initiatives interplay over time and across cohorts, so that the co-benefits and delayed benefits are explored more fully.

The lack of qualitative work in existing research makes advocacy for supporting EMCR capacity-building and understanding best practices challenging. Furthermore, there is a need to recognize and address the structural barriers which inhibit EMCRs from fully participating in science-for-policy work as the onus should not be fully placed on individual EMCRs as they try to build skills and networks.

7.1 Implications for INGSA-Europe

The findings of this review suggest several areas where INGSA-Europe is well positioned to contribute to EMCR capability building in science for policy across Europe.

- First, there is a clear need for improved visibility and coordination of existing opportunities. As a pan-European network, INGSA-Europe could help surface and connect those developing and delivering existing initiatives to reduce duplication of effort and support more systematic mapping of opportunities across national and institutional contexts.
- Second, the review points to the importance of complementing training with institutional engagement. Beyond skills development, INGSA-Europe could play a convening role in discussions about incentives, recognition, and career structures that shape EMCR participation in science advice, particularly in collaboration with universities, funders, and advisory bodies.
- Third, INGSA-Europe could support evidence-informed learning about what works, by encouraging evaluation, knowledge sharing, and reflection across programmes rather than the proliferation of isolated pilots. As was achieved at the inaugural conference, INGSA can create spaces for practitioners and EMCRs to exchange experiences especially across different political and institutional settings. This type of informal knowledge exchange may be as valuable as developing new training formats.
- Finally, the findings reinforce the value of targeted support for EMCRs operating in diverse and challenging contexts, where access to opportunities and institutional backing may be more limited. Aligning EMCR-focused activities with INGSA-Europe's broader work on science advice in challenging settings offers a coherent pathway for future programming and research.

7.2 Future questions and points for discussion

This report also generated potential areas for discussion to inform INGSA-Europe's future work, strategizing, and dialogue amongst stakeholders:

- What types of initiatives would INGSA-Europe and related networks most like to see more of? (types of programmes, supports?)
- How could those changes be made? (e.g. by whom? types of role or specific institutions?)
- What specialist vs. generalist advice would be most useful for EMCRs?
- What local or contextual barriers or information explains why science for policy is not (or appears not to be) a key concern in certain regions? How could this be addressed?
- How could the types of programmes available be diversified and/or scaled up?

- How could science-for-policy capacity building focus on different levels of policy (transnational, national, local, institutional) and different types of scientific advice (evidence specific, evidence synthesis, general)?
- What role can mentorship and mentoring networks play? What models of mentoring are most effective and sustainable in different contexts?
- How do existing programmes define 'policy' and understand the policy process and how policy operates in practices? What are the benefits or limitations of certain approaches or theoretical understandings of policy (i.e. sociological, political, etc.)?
- Would doctoral training programmes offer a cost-effective and easily scalable intervention to support EMCRs in science-for-policy more widely?
- Do the stated objective of programmes match the outcomes and experiences for EMCRs (e.g. improving science advice, career progression, need to choose path)?
- Are there any contexts/countries/regions that would be useful to focus on? Are there any existing debates, questions, gaps identified by INGSA?
- Should programmes work to address the intersectional identities of EMCRs (gender, race, class, ethnicity, etc.)- particularly with groups that tend to leave STEM fields at higher rates? Is there a need for targeted supports/considerations/opportunities?

Overall, this exploratory scoping review contributes a synthesis of the EMCR science-for-policy capacity building-landscape across Europe. These findings suggest that while EMCRs are widely recognised as valuable contributors to science-for-policy systems, existing support mechanisms remain partial, uneven, and insufficiently embedded within academic and policy institutions. Addressing these gaps will likely require coordinated efforts across universities, funders, advisory bodies, and networks, alongside improved visibility, evaluation, and strategic alignment of capability-building initiatives.

This review provides a foundation for further dialogue within INGSA-Europe and beyond on how EMCR science-for-policy capacity can be strengthened in ways that are context-sensitive, sustainable, and institutionally supported.

8. References

AAAS & TWAS. (2026). AAAS-TWAS Course on Science Diplomacy. https://twas.org/opportunity/aaas-twas-course-science-diplomacy

AAAS. (2017). Connecting Scientists to Policy Landscape: Analysis of Mechanisms Around the World Engaging Scientists and Engineers in Policy Around the World. American Association for the Advancement of Science. https://www.aaas.org/sites/default/files/2024-06/International-landscape-analysis-full.pdf

Chanvillard, L., Franz, P., Grasso, M., Pale, U., & Robin, P. (2024). "How to Bridge the Gap": Empowering Early-Career Scientists to Navigate the Science-Policy Interface—Conclusions from a Summer School. *Journal of Science Policy & Governance*, *24*. https://doi.org/10.38126/JSPG240104

Cuellar-Ramirez, P. (2021). Science Diplomacy for Climate Action and Sustainable Development in Latin America and the Caribbean: How Important Is the Early Career Perspective to New Governance? *Frontiers in Research Metrics and Analytics*, *6*. https://doi.org/10.3389/frma.2021.657771

Díaz, L. B., Gulizia, C., Jain, S., Langendijk, G. S., Palanisamy, H., Rabanal, V., Charlton, C. S., Dajuma, A., Donkor, F. K., Egbebiyi, T. S., Kondi Akara, G., Jrrar, A., Siddiqui, M. R., Brahim, Y. A., Angnuureng, B. D., Anschütz, A.-A., Awo, F. M., Builes-Jaramillo, A., Cobb, A., … Siame, G. (2025). Connecting climate science and society: Reflections from early and mid-career researchers at the World Climate Research Programme Open Science Conference 2023. *Frontiers in Climate*, *6*. https://doi.org/10.3389/fclim.2024.1501216

Diggs-Andrews, K. A., Mayer, D. C. G., & Riggs, B. (2021). Introduction to effective mentorship for early-career research scientists. BMC Proceedings, 15(2), 7. https://doi.org/10.1186/s12919-021-00212-9

Evans, M. C., & Cvitanovic, C. (2018). An introduction to achieving policy impact for early career researchers. Palgrave Communications, 4(1), 88. https://doi.org/10.1057/s41599-018-0144-2

Fenby-Hulse, K. et al. (2019) *Research impact and the early career researcher: lived experiences, new perspectives.* Abingdon, Oxon: Routledge.

Filyushkina, A., Ryu, H., Kadykalo, A. N., Murali, R., Campagne, C. S., Washbourne, C.-L., Peter, S., Saidi, N., Sarzynski, T., Fontanella Pisa, P., Ávila-Flores, G., & Amiar, T. (2022). Engaging at the science-policy interface as an early-career researcher: Experiences and perceptions in biodiversity and ecosystem services research. *Ecosystems and People*, *18*(1), 397–409. https://doi.org/10.1080/26395916.2022.2085807

Gibson, E. M., Bennett, F. C., Gillespie, S. M., Güler, A. D., Gutmann, D. H., Halpern, C. H., Kucenas, S. C., Kushida, C. A., Lemieux, M., Liddelow, S., Macauley, S. L., Li, Q., Quinn, M. A., Roberts, L. W., Saligrama, N., Taylor, K. R., Venkatesh, H. S., Yalçın, B., & Zuchero, J. B.

(2020). How Support of Early Career Researchers Can Reset Science in the Post-COVID19 World. *Cell*, *181*(7), 1445–1449. https://doi.org/10.1016/j.cell.2020.05.045

Global Young Academy. (2016). Broadening the scope of science advice: Engaging knowledge-creators beyond the academy. Workshop report. https://www.ingsa.org/wp-content/uploads/2016/11/GYA_JRC_INGSA_Workshop_2016.pdf

Gustafsson, K. M., Díaz-Reviriego, I., & Turnhout, E. (2020). Building capacity for the science-policy interface on biodiversity and ecosystem services: Activities, fellows, outcomes, and neglected capacity building needs. Earth System Governance, 4, 100050. https://doi.org/10.1016/j.esg.2020.100050

Holmes-Henderson, A. & Lewin, P. (2025). How, and where, is policy engagement recognised and rewarded in Higher Education? UPEN Report. https://upen.ac.uk/resources/new-report-highlights-need-for-improved-reward-and-recognition-for-academics/

John, T., Cordova, K. E., Jackson, C. T., Hernández-Mondragón, A. C., Davids, B. L., Raheja, L., Milić, J. V., & Borges, J. (2023). Engaging Early-Career Scientists in Global Policy-Making. *Angewandte Chemie International Edition*, *62*(34), e202217841. https://doi.org/10.1002/anie.202217841

Joint Research Centre. (2026). Collaborative Doctoral Partnership (CDP) programme—Joint Research Centre. https://joint-research-centre.ec.europa.eu/work-us/collaborative-doctoral-partnership-cdp-programme_en

Kahn, R. A., & Esposito, L. W. (2025). Mentoring and Supporting Mid-Career Scientists. *Perspectives of Earth and Space Scientists*, *6*(1), e2024CN000250. https://doi.org/10.1029/2024CN000250

Kent, B. A., Holman, C., Amoako, E., Antonietti, A., Azam, J. M., Ballhausen, H., Bediako, Y., Belasen, A. M., Carneiro, C. F. D., Chen, Y.-C., Compeer, E. B., Connor, C. A. C., Crüwell, S., Debat, H., Dorris, E., Ebrahimi, H., Erlich, J. C., Fernández-Chiappe, F., Fischer, F., … Weissgerber, T. L. (2022). Recommendations for empowering early career researchers to improve research culture and practice. PLOS Biology, 20(7), e3001680. https://doi.org/10.1371/journal.pbio.3001680

Mak, S., & Thomas, A. (2022). An Introduction to Scoping Reviews. *Journal of Graduate Medical Education*, *14*(5), 561–564. https://doi.org/10.4300/JGME-D-22-00620.1

Mauduit, J.-C., & Gual Soler, M. (2020). Building a Science Diplomacy Curriculum. *Frontiers in Education*, *5*. https://doi.org/10.3389/feduc.2020.00138

O'Conner, S. (2021). Avoiding group-think in policymaking. UPEN blog. 2021. London: University College London\ https://upen.ac.uk/resources/Avoiding-groupthink-in-policymaking/

Ortiz Calva, E., Dalafi, S., Garner, K., Patel, P., McGrath, P., & Montgomery, K. (2024). *A Pairing Model to Bring Scientists and Decisionmakers Closer Together*. AAAS.

https://www.sciencediplomacy.org/article/2024/pairing-model-bring-scientists-and-decisionmakers-closer-together

Rölfer, L., Elias Ilosvay, X. E., Ferse, S. C. A., Jung, J., Karcher, D. B., Kriegl, M., Nijamdeen, T. M., Riechers, M., & Walker, E. Z. (2022). Disentangling Obstacles to Knowledge Co-Production for Early-Career Researchers in the Marine Sciences. *Frontiers in Marine Science*, *9*. https://doi.org/10.3389/fmars.2022.893489

SAPEA. (2024). Report on challenges for early and mid-career researchers in the provision of science advice. https://scientificadvice.eu/reports/report-on-challenges-for-early-and-mid-career-researchers-in-the-provision-of-science-advice/

Shanley, D., Cohen, J. B., Surber, N., & Stack, S. (2022). Looking beyond the 'horizon' of RRI: Moving from discomforts to commitments as early career researchers. Journal of Responsible Innovation, 9(1), 124–132. https://doi.org/10.1080/23299460.2022.2049506

Swiss Young Academy. (2026). Swiss Young Network for Science Policy and Diplomacy (SYNESPOD). https://en.swissyoungacademy.ch/joint-projects/swiss-young-network-for-science-policy-and-diplomacy-synespod

Swiss Young Academy. (2025a). *On Science for Policy and Diplomacy Education in Switzerland and Beyond: A Brief Overview*. https://s3.eu-central-2.wasabisys.com/a-plus-cms-statamic/p/assets/swissyoungacademy/gemeinsame-projekte/synespod/report_on-science-for-policy-and-diplomacy-eduaction-in-switzerland-and-beyond---a-brief-overview.pdf

Swiss Young Academy. (2025b). European National Young Academies (ENYA) Meeting 2025. https://en.swissyoungacademy.ch/european-national-young-academies-meeting-2025

UKRI. (2025). UKRI Policy Internships scheme. https://www.ukri.org/apply-for-funding/ukri-policy-internships/

Union for the Mediterranean. (2025). From knowledge to action: Training researchers to influence Mediterranean policy. Union for the Mediterranean - UfM. https://ufmsecretariat.org/from-knowledge-to-action-training-researchers-to-influence-mediterranean-policy/

Vanholsbeeck, M. (2022). *Between the traditional, the neo-liberal and the open university Early career investigators caught in the triple bind of academic career requirements* (No. y9r24_v1). SocArXiv. https://doi.org/10.31235/osf.io/y9r24

Wang, M., Green, C., & Wang, Z. (2022). Six Recommendations for Early Career Professionals to Join Work at the Science–Policy Interface: Collective Experience from Academic, Governmental, and NGO Scientists. *Environmental Science & Technology*, *56*(24), 17506–17509. https://doi.org/10.1021/acs.est.2c08290

Washbourne, C.-L., Murali, R., Saidi, N., Peter, S., Pisa, P. F., Sarzynski, T., Ryu, H., Filyushkina, A., Campagne, C. S., Kadykalo, A. N., Ávila-Flores, G., & Amiar, T. (2024). Navigating the science policy interface: A co-created mind-map to support early career research contributions to policy-

relevant evidence. Environmental Evidence, 13(1), 15. https://doi.org/10.1186/s13750-024-00334-5

Weakley, S., & Waite, D. (2023). Academic knowledge brokering in local policy spaces: Negotiating and implementing dynamic idea types. *Evidence & Policy*, *19*(3), 342–359. https://doi.org/10.1332/174426421X16638549272196

Western Balkans Info Hub. (2026). Western Balkans Mobility Scheme: A POLICY ANSWERS Pilot Programme. https://westernbalkans-infohub.eu/calls/western-balkans-mobility-scheme/

Wróblewska, M. N., Balaban, C., Derrick, G., & Benneworth, P. (2024). The conflict of impact for early career researchers planning for a future in the academy. *Research Evaluation*, *33*, rvad024. https://doi.org/10.1093/reseval/rvad024