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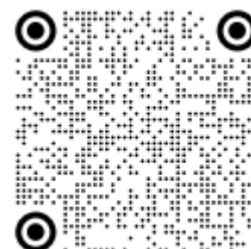
# Scientific policy advice in times of crisis

## Considerations and recommendations by the Swiss Science Council SSC

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SSC Report 3/2022

The complete report, including an Appendix authored by Caspar Hirschi, Johanna Hornung, Dylan Jaton, Céline Mavrot, Fritz Sager and Caroline Schlauffer is available in German on the SSC website



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## The Swiss Science Council recommendations to the Federal Council

1. Develop instruments and define processes to allow scientists to put new and lesser-known risks on the political agenda. Use existing organisations and communication channels as entry points for scientists to contact administrative and political actors. Advertise these entry points to the scientists.
2. Clarify the mandate given to publicly funded science policy organisations:
  - a) Hold regular meetings between the presidents of the six science policy organisations (swissuniversities, ETH Board, academies, Swiss National Science Foundation, Innosuisse and Swiss Science Council), the Federal Chancellery, a Federal Council Committee and the presidents of parliamentary commissions;
  - b) Invite swissuniversities, the ETH Board and the State Secretariat for Education, Research and Innovation (for research institutions of national importance) to suggest to their institutions creating a new branch of the higher education institutions' third mission, namely developing and maintaining science policy advice capacities in times of crisis as well as in normal times. The institutions who choose to proactively pursue this new mission should include it in their reporting and monitoring processes;
  - c) Mandate the academies to foster coordination and networking among all experts in the field of policy advice.
3. Increase networking between science and crisis management experts (such as the members of standing crisis units within the administration), especially via training. Organise shared training exercises, making use of state-of-the-art scientific knowledge to simulate dynamic conditions and helping scientists to understand the reality of the field and vice versa.
4. Use departmental research to expand ties between politics and science, as well as to identify potential threats, knowledge gaps, and needs for additional expertise. Involve departmental research systematically in the policy cycle, especially at the beginning (problem formulation, development of options for action).
5. For a subset of extra-parliamentary commissions defined as having a crisis related or pre-crisis related mission:
  - a) Adapt the legal framework to ensure that the latitude needed to act independently from the administrative structure to which the commission is attached is given;
  - b) Define principles of governance (rights of nomination, veto rights, vetting process) to ensure adequate composition in terms of expertise. Specialised competences and, for scientists, excellence in their field should be the main selection criteria;
  - c) Increase support structures, such as secretariat and discretionary funds, for extra-parliamentary commissions with a specific crisis management role.
6. Revise the "Instructions on crisis management in the federal administration" and define situations when external advisors must be integrated and how. Set rules for the appointment and implementation of scientific task forces to create transparency and enhance legitimacy:
  - a) Nomination of members to a scientific task force by the presidents of the six main science policy organisations instead of cooptation; this might include a targeted open call and/or the planning of specific selection mechanisms by each of the main science policy organisations;
  - b) Periodic review of the disciplinary composition of the task force depending on the dynamic evolution of the crisis;
  - c) Institutional anchoring of the task force at the responsible Federal Department, which should support it in administration and communication;
  - d) Rules of commitment, as well as rules for ethical engagement and communication, for task force members;
  - e) An escalation procedure up to the Federal Council and the Control Committees of parliament in the event of fundamentally diverging assessments between the administrative actors in the crisis organisation and the scientists involved.

# 1 Introduction

Since the outbreak of the Covid-19 pandemic, the policy advice function of scientific institutions and/or scientists has been under renewed scrutiny. At the centre of the debate is the question whether science should be more actively engaged in policy-making, especially during crises, and if so, how. So far, members of the federal parliament have submitted various political initiatives on this topic to the Federal Council.<sup>1</sup> The Parliamentary Control of the Administration and the Federal Chancellery have been commissioned to develop new models.<sup>2</sup> Finally, the academies have published their ideas on the subject.<sup>3</sup>

The Swiss Science Council (SSC) is an extra-parliamentary commission that advises the Confederation on issues related to science, higher education, research and innovation policy. “Lessons from the Covid-19 pandemic” is one of the main pillars of its Working Programme 2020–2023<sup>4</sup>. In August 2022, the SSC published its analysis and recommendations on “Public acceptance of crisis measures”. In this report, it uses a broad crisis definition as “a situation of great danger, requiring action under uncertainty”. Unless contained at an early stage, a crisis will evolve, become acute, and threaten to spread to more sectors and compound with other crises, leading to a highly complex situation.<sup>5</sup>

In addition, the SSC mandated a group of researchers specialised in scientific expertise and advisory mechanisms to analyse the political advisory system in Switzerland. In their report “Science policy advice in times of crisis in Switzerland: an analysis of the financial crisis, the Fukushima accident and the Covid-19 pandemic”, Caspar Hirschi et al. have developed a criteria framework to assess the strengths and weaknesses of different advisory mechanisms, ranging from extra-parliamentary commissions to specialised research institutes to ad-hoc scientific boards. The report’s main conclusion is that there is no “one size fits all” advisory system for all crises. Furthermore, it points to the high importance of correctly scoping a new crisis and the need to improve several advisory mechanisms simultaneously (see Appendix).

Based on these previous reports and several discussions within the SSC as well as with other stakeholders, the SSC outlines the existing instruments (chapter 2) and overall challenges (chapter 3). It concludes with its proposal and its recommendations to increase networking and agility within the science policy advice landscape (chapter 4).

## 2 Instruments for science policy advice

The liberal political system in Switzerland is characterised by federalism, concordance, and direct democracy, and is supported by a lean administration. In addition to the intervention of political parties, interest groups and administrative units, independent scientific expertise also enters the policy-making process at various stages. It plays a special role when it comes to preventing or mitigating crises.

### 2.1 Federal departmental research (*Ressortforschung*)

Based on the Research and Innovation Promotion Act (RIPA, art. 16), the federal administration can initiate its own research whenever such results are necessary for the fulfilment of its tasks. *Ressort-*

<sup>1</sup> Postulate Michel 20.3280 “Wissenschaftliches Potenzial für Krisenzeiten nutzen” (accepted by parliament), Postulate Regazzi 22.3175 “Swiss National Covid-19 Science Task Force. Aufarbeitung der Fehler und Versäumnisse” and Motion Français 21.3225 “Post-Covid-19. Für eine ständige Plattform von wissenschaftlichen Expertinnen und Experten”.

<sup>2</sup> Fritz Sager, Céline Mavrot and Johanna Hornung (2022). *Wissenschaftliche Politikberatungssysteme in der Covid-19-Krise: Die Schweiz im Vergleich mit Deutschland, Italien, Frankreich und Grossbritannien. Studie zuhanden der Schweizerischen Bundeskanzlei, Sektion Strategische Führungsunterstützung*. Bern, 14 April 2022.

Andreas Balthasar et al. (2022). *Auswertung Krisenmanagement der Bundesverwaltung (2. Phase). Resultate als Grundlage für die Erstellung des Berichts: Arbeitsdokument zuhanden der Bundeskanzlei*. Luzern, 2022.

<sup>3</sup> Karin Ammon, Marcel Falk and Jürg Pfister (2022). Science Advice Network. *Swiss Academies Communications* 17(8).

<sup>4</sup> Schweizerischer Wissenschaftsrat (2020), *Arbeitsprogramm 2020–2023. Betrachtung der Bildungs-, Forschungs- und Innovationslandschaft aus einer Langzeitperspektive*. See <https://www.wissenschaftsrat.ch>.

<sup>5</sup> See definition p. 8 in: Swiss Science Council (2022). *Public acceptance in a time of crisis. Learning from the Covid-19 pandemic. Results of two workshops and analysis by the Swiss Science Council SSC*. SSC Report 1/ 2022, Bern. See also Appendix on pp. 46–47, where C. Hirschi and colleagues discuss various crisis dimensions, such as impact within society, space and time. The time dimension is especially relevant, as the phase preceding the acute phase may vary from brief to long lasting, and may offer a window of opportunity to prevent an acute crisis.

*forschung* or federal departmental research is tasked with the early identification of future societal challenges and meant to react quickly to current crisis situations. Federal departmental research can therefore operate its own research institutes (see below) or carry out research programmes with external institutions. This allows the federal administration a certain amount of flexibility as well as the ability to include diverse research perspectives. Responsibility for departmental research lies with the relevant federal department and is coordinated by the Secretary of State for Education, Research and Innovation. The aim of departmental research is to increase the effectiveness of political strategies and to enrich the political debate with scientific and technical insights.

## **2.2 Research institutes**

To provide useful policy advice, research institutes and competence centres often operate in the zone between science and administration. Some institutes, for example, are part of a department, such as the Spiez Laboratory or Meteosuisse, while others are part of the ETH domain, such as the Swiss Federal Institute for Forest, Snow and Landscape Research or the Swiss Seismological Service. Others are attached to universities, such as the Institute of Virology and Immunology or the Oeschger Center for Climate Change Research. In addition, some institutes supported by the Confederation under art. 15 RIPA advise the administration and/or the public on specific risks (e.g., the Swiss Center for Applied Human Toxicology or the Swiss Tropical and Public Health Institute). This kind of policy advice constitutes a good solution for some risks that can be studied in more depth, but cannot be applied to all kinds of threats or crises.

## **2.3 Extra-parliamentary commissions**

The main task of extra-parliamentary commissions is to advise policy-makers and the federal administration in specific fields where a high degree of expertise is required that does not already exist within the federal administration (Government and Administration Organisation Act, art. 57b). Only a minority of the existing 110 extra-parliamentary commissions have any relevance for the prevention, preparedness, surveillance, or early detection of crises. However, a significant number of extra-parliamentary commissions do address threats, including long-term issues such as energy systems, biodiversity, or natural hazards. These include the National Platform for Natural Hazards, the Federal Expert Commission for Biological Safety, or the Federal Commission for Nuclear Safety, to name but a few. However, the legal basis and mandate say little about an extra-parliamentary commission's self-conception or how it *de facto* acts in times of crisis. In other words, extra-parliamentary commissions have considerable latitude in interpreting their mandate. For instance, during the recent pandemic, the Federal Commission for Pandemic Preparedness and Response was neither activated by the federal administration, nor did it become active of its own accord. By contrast, the Federal Commission for Vaccination Affairs took the initiative by continuously, even insistently, offering its expertise and advice. While the Swiss National COVID-19 Science Task Force (NCF-TF) assumed the main science advisory role, the Commission for Vaccination Affairs asserted its official advisory competence in the vaccination dossier.

## **2.4 Task forces**

The NCF-TF was a unique example of a self-organised scientific advisory mechanism in Switzerland's recent past. A detailed assessment of its role can be found in the Appendix. Overall, the NCF-TF "distinguished itself by its interdisciplinarity, even if this could have been further developed".<sup>6</sup> It especially lacked certain key disciplines, such as psychology, educational science, political science, and history, which were later occasionally included as the pandemic wore on.<sup>7</sup> Yet it was more interdisciplinary than similar structures in other countries, having integrated ethics and economics from the beginning. The NCF-TF was successful in preserving its independence from the political system and effective at influencing policy. However, issues related to legitimacy and communication were periodically raised. There was a lack of regular, formalised exchanges with the federal administration and government, as well as a lack of mutual understanding of each other's values and priorities.

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<sup>6</sup> See analysis in the Appendix, p. 64.

<sup>7</sup> See analysis in the Appendix, p. 60.

## 2.5 Networks of scientists

Inputs by individual scientists may counterbalance the possible bias of institutional views as well as identify and mitigate knowledge gaps. In addition, the media need individuals for quotes, interviews, and explanations, which often leads to a self-reinforcing dynamic in which the public focuses on a few individuals. Suitable scientists need to be known and coordinated. Networks already exist in Switzerland, but there are no specific mechanisms in place to mobilise and organise this expertise so that it could advise politics. These mechanisms might include annual conferences (see chapter 4.1), periodical publications on upcoming issues for which there is little awareness or understanding, or other forms of institutionalised dialogue with cantonal and federal administrations. In addition to extra-parliamentary commissions, various offices within the federal administration nurture exchanges with external experts, but these networks are neither formalised nor sufficiently interconnected.

### **The main actors**

#### **Academies**

According to the RIPA and more specifically to the service-level agreement between the Swiss Academies of Arts and Sciences and the Confederation, one of the core missions of the academies is to provide scientific expertise to policy-makers. For example, the academies are engaged in climate, energy, and biodiversity policy as well as in medical ethics and in assessing the social impact of new technologies. They also take an active interest in the broader dialogue between science and society by adopting participatory approaches.

#### **ETH Board**

In its current strategy, the ETH Board has given itself a broad mandate to provide scientific expertise to policy advice. The board members are expanding their capabilities in science communication and public engagement. For many years now, the ETH board has also operated several research institutes, such as the Swiss Federal Institute for Forest, Snow and Landscape Research, the International Risk Governance Center, the Center for Security Studies, and the Swiss Seismological Service.

#### **Cantonal universities, UAS, UTE**

Exchanges between cantonal universities, Universities of Applied Sciences, Universities of Teacher Education (and/or their researchers), and public authorities are not uncommon. However, the national law does not provide these cantonal higher education institutions with scientific policy advice mandates. (The exception is the ETH Board, mentioned above.) The Universities of Teacher Education should receive special attention, since they have expertise in the field of science communication. In addition, Radio Télévision Suisse in the French-speaking part of Switzerland along with experts from higher education institutions have created a platform that addresses a wide range of topics.

#### **Funding agencies**

The Swiss National Science Foundation is involved in science communication via its funding scheme Agora and by offering individual advice, a best practices guide, and media training courses. The SNSF also runs the National Research Programs on behalf of the Confederation, while Innosuisse runs the Flagship initiative, which seeks to find solutions to challenges that are relevant to a large part of the economy and society.

#### **Non-profit organisations**

In recent years, groups of scientists have founded several private associations such as Reatch (created in 2018) and CH++ (created in 2021). These grassroots organisations aim at improving the dialogue between science and politics. With its project Franxini, Reatch addresses the knowledge gaps among scientists and teaches them about the entry points into the policy making cycle. Meanwhile, CH++ targets the lack of digital competences within politics and policy-making.

#### **Swiss Science Council**

The SSC has an interdisciplinary and systemic view on the scientific and political landscape in Switzerland. It also has an advisory role in the early detection of fundamental and long-term issues. Yet overall, the SSC remains within its policy-for-science (rather than science-for-policy) role. It has no experience in crisis management and, like other extra-parliamentary commissions, has limited financial and personnel resources for such cases.

### 3 Challenges

While the previous chapter mentioned the limits of existing instruments, this chapter looks at broader issues affecting the policy cycle and the relationship between science and politics.<sup>8</sup>

#### 3.1 Agenda setting

The agenda setting phase is essential in order to identify situations where additional expertise is necessary.<sup>9</sup> One of the most important effects of scientific engagement during the Covid-19 crisis was the initial intervention of a few committed researchers, whose insistence put the public health risk onto the political agenda. Nevertheless, there is a problem, especially at the level of the legislative branch: While the federal administration and the Federal Council have access to various scientific advice resources, Members of Parliament have only the option of inviting experts to the hearings of parliamentary commissions or to mandate a special analysis from the Federal Council via procedural request. Furthermore, Members of Parliament as well as the secretariats of the commissions often lack the necessary knowledge about scientific methodologies and the academic system. For this reason, the science lobby organisation “Netzwerk Future” advises parliamentary commissions on the selection of experts to be invited to parliamentary hearings on specific subjects.<sup>10</sup>

#### 3.2 Scoping and selecting experts

Finding the right kind of disciplinary expertise depends on the nature and complexity of the crisis, which can vary. Managing an acute, short-lived crisis is less complex (for example, if measures to contain the crisis are implemented early and effectively) than a latent and/or long-term crisis. If a crisis evolves and becomes long lasting, it is likely to gain in complexity, spill-over into other sectors, and interact with other crises. Even if scientists have the right disciplinary expertise, they might have no experience in science communication or have only limited knowledge of the political system. Furthermore, the formulation of questions related to a crisis often determines the outcome of a (scientific) consultation, and scientific information is more likely to be believed if it confirms one’s own beliefs – a phenomenon known as “motivated reasoning”.<sup>11</sup> As crises have dynamic trends and new needs and questions turn up, the mix and range of expertise needs to be periodically reassessed.

#### 3.3 Bridging the cultural divide

Science and politics are based on different value systems: Science is based on evidence resulting from rational and peer-review processes, whereas politics is based on consensus-finding through a democratic procedure and the rule of law. Scientists see themselves as impartial advisors and not as representing interest group. At the same time, politicians have to integrate many different priorities into their decision-making. It is essential for everybody involved to be open about such differences and to actively promote mutual understanding and respect via training and networking. For scientists involved in policy advice, being an “honest broker” includes providing policy alternatives to expand the decision-makers’ range of choice, while simultaneously acknowledging the limits to their own knowledge and the values that influence their assumptions.<sup>12</sup>

#### 3.4 Taking action

A crisis is also an opportunity for change, as a new constellation of actors and interests emerges and previously unpopular measures suddenly find majorities. Still, delivering evidence-based analyses, options for action and flagging possible consequences does not necessarily imply that measures are being

<sup>8</sup> The policy cycle divides the decision-making processes in politics into four phases (agenda setting, design, implementation and review).

<sup>9</sup> For the conceptual principles of the phase model of the policy process, see Fritz Sager, Karin Ingold and Andreas Balthasar (2017). *Policy Analyse in der Schweiz*. NZZ Libro. p. 89.

<sup>10</sup> Netzwerk Future, founded 2001, is a common organisation of the academies, the ETH board, Innosuisse, the SNSF and swissuniversities.

<sup>11</sup> Peter Weingart (2021). Wissenschaftliche Politik in Krisenzeiten. In: *Aus Politik und Zeitgeschichte*, 15 January 2021. Available under: <https://www.bpb.de/shop/zeitschriften/apuz/wissen-2021/325609/wissenschaftliche-politikberatung-in-krisenzeiten>

<sup>12</sup> For more information, see Roger. A. Pielke (2007). *The Honest Broker: Making Sense of Science in Policy and Politics*. University Press, Cambridge.

taken and implemented. Actors in the sphere of scientific policy advice must be well versed in both the academic and the political fields. They must be capable of linking political problems with concrete proposals for solutions and of representing these in the political debate. In addition, scenarios, training, and contingency planning help to support mental flexibility and the courage to act.

## **4 Towards a science policy landscape**

In a major crisis, knowledge is a scarce commodity. Although not every crisis needs a science task force, every crisis calls for a larger capacity for scientific expertise. On the one hand, experts need training in communication, knowledge of policy-making and crisis management, and they must have access to optimised policy advice instruments. On the other hand, the administration and politics must have an open ear for scientific advice.

### **4.1 A new mission**

Higher education institutions are already active in knowledge transfer and science communication, for instance via higher education didactic courses. They could further develop science communication and science journalism in the form of study courses and as a practice. A clear distinction should be made between scientific and institutional communication.

Higher education institutions should be invited, on a voluntary basis and with the chance to enhance their competitive advantage, to go a step further by defining policy advice as part of their third mission, which is to contribute to society in economic and socio-political ways. This would signal the institution's commitment to individual scientists who chose to engage in policy advice, and would imply adequate recognition and monitoring of such efforts. The academies could promote information and educational material for scientists interested in giving policy advice. Understanding the written and unwritten rules of the Swiss political system has become especially important given that the Swiss science system is so international. This would make it easier for non-Swiss researchers to contribute to advising Swiss authorities.

### **4.2 A network of networks**

The higher education institutions, the academies, the competence centres and the administrative offices with formal (e.g., extra-parliamentary commissions) and informal advisory mechanisms should create an overarching network, loosely organised and coordinated by the academies. Inspired by the model of "ScienceComm", the academies could also organise an additional annual event open to all scientific policy advisors, focusing on good practice, upcoming risks and threats, as well as knowledge gaps. Parts of this network should be actively involved in crisis management exercises (at the federal, cantonal, and communal level).

Such a network of networks has also been described by other actors, namely the academies<sup>13</sup>. In the SSC's view, an additional support structure tasked with coordinating the overarching network is necessary and should be located within the academies. It would not need to be very large, as the "dialogue between science and politics" should be incrementally conceived and does not fundamentally differ from the current mission and activities of the scientific organisations and institutions. However, the superstructure (Scientific Board), tasked with quality assurance and supervision, as suggested by the academies, would create too much red tape.

Strategic collaboration and personal meetings between the six main scientific organisations (i.e., swiss-universities, academies, ETH board, SNSF, Innosuisse, SSC) are already in place and would benefit from becoming formalised. In the SSC's view, this group of organisations (Strategic Board) should, at the very least, involve the Federal Chancellery, given its role as coordinating body and as the head of the Strategic Management Support of the Federal Council. In addition, the formation of a Federal Council committee and the involvement of the presidents of parliamentary commissions should be examined.

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<sup>13</sup> Karin Ammon, Marcel Falk and Jürg Pfister (2022). Science Advice Network. *Swiss Academies Communications* 17(8).



The purpose of more regular, institutionalised meetings would not be to discuss science policy issues but to create an ongoing dialogue between administration, politics, and science on the main challenges and risks and on a variety of policy fields.

#### **4.3 A flexible structure**

The presidents of the six main scientific organisations should advise the government ad hoc on the composition of a science task force, whenever the need arises. The SSC could advise on the mix and range of scientific expertise needed (which would be a dynamic process, depending on how the crisis unfolds) and the rules of engagement. The task force members could be proposed by the higher education institutions and chosen from the network of experts mentioned above based on criteria defined in advance and validated by the presidents of the scientific organisations. If time allows, a targeted open call may be organised. The Federal Department in charge should provide the secretariat to support a new task force and support its communication activities. The Federal Council should revise the “Instructions on crisis management in the federal administration” and define situations when external advisors must be integrated and how, including a code of ethical conduct accounting for the sensitive nature of the situation. Since providing policy advice is time consuming and might conflict with scientists’ duties at their home institutions, higher education institutions should examine how to best support scientists both in the short and long term.

#### **4.4 Conclusions**

The Swiss political system is currently being serviced by a broad range of scientific advice. Yet the current environment, characterised by multiple crises interacting with each other in complex ways, calls for an expanded role for science in politics. The SSC has analysed how to foster and sustain a more flexible and integrated policy advice landscape by formulating six recommendations addressed to the Federal Council.

To increase capacity building and flexibility, decision-makers should keep an open door for science and expand the entry points for individual scientists and scientific institutions at all levels of politics and administration (Recommendation 1). Politicians at the highest level should meet the presidents of the scientific organisations on a regular basis to discuss threats and challenges. Without infringing on the autonomy of higher education institutions and research institutions, these organisations should be encouraged to define policy advice as an integral part of their third mission (R2). Individual scientists should have access to the knowledge and skills needed for efficient policy advice, including crisis management via shared training, as well as networking and coordination (R3). Departmental research should be used to quickly generate knowledge of threats and risks as well as a bridge between science and policy (R4). A subset of extra-parliamentary commissions should be able to adapt to specific crises by receiving an adequate legal basis as well as additional support (R5). In situations of high complexity, a scientific task force should be formed with an adequate interdisciplinary background, recruiting individual scientists from a network of networks (R6).