

## *Executive Summary*

Scientific advice has an important role to play in all phases of the crisis management cycle: preparedness, response and recovery. It can be particularly valuable when a crisis occurs and develops, which is when sense-making matters. However, this value is dependent on the quality and timeliness of the advice and, most importantly, its relevance to the decisions that crisis managers and policymakers have to make. Generating rigorous scientific advice requires access to relevant data, information and expertise. Ensuring that this advice is useful requires effective connections between scientific advisory processes and crisis management mechanisms. When crises are novel, complex or large in scale and, in particular, when they have a trans-national impact, ensuring the rigour and usefulness of scientific advice can be particularly challenging. It requires effective mechanisms for rapid exchange of data and information and a common understanding of how scientific advisory mechanisms operate in different countries. Otherwise, there is a serious risk of confusion that can impede the crisis response, undermine public trust in government and responsible agencies, and, ultimately, lead to avoidable loss of life and increased economic disruption.

In most OECD countries, for familiar crises of limited scale, there are processes in place for linking scientific advice to crisis management. These are often hazard -dependent -- for example, they will be different for food safety versus extreme weather events -- and may involve a variety of sources of scientific input, from government scientists to academia to commercial actors and NGOs. Most of these processes have some ability to scale up, at least from local to national scale. In some countries, there are clearly defined scientific advice co-ordination mechanisms that are activated in response to novel, larger -scale crises and that link directly to the corresponding central crisis management structures.

However, in the majority of OECD countries, these science co-ordination mechanisms are less well defined and even for major and complex large -scale crises with centralised crisis management structures, the scientific advice comes from a number of sources that may or may not be co-ordinated. There are advantages and disadvantages to both centralised and distributed scientific advisory mechanisms, and the mechanisms themselves are very context specific. When crises are trans-national in nature, understanding how scientific advice feeds into crisis management processes in different countries is essential for effectively coordinating between countries. Although in some circumstances this responsibility may be devolved to international organisations, this is not always the case. Most OECD countries regard advice from such organisations as complementing, rather than replacing, their own scientific advisory processes.

Within a country, accessing the data and information necessary for providing useful scientific advice in a domestic crisis may not always be straightforward. For familiar crises, the relevant organisations normally know where to go, and standard operating procedures and protocols are frequently in place to allow rapid data and information exchange, analysis and generation of advice. For novel and complex crises, the data and

information requirements are often greater but, again, usually manageable in a domestic context in most OECD countries. However, in trans-national crises, or crises that have significant international implications, access to the necessary scientific data and information by any one country may be complicated or even prevented by a number of barriers. These barriers include legal issues, national security concerns, differences in data curation and interoperability standards, cultural differences, and political, economic and commercial interests. Fortunately, a number of international frameworks are already in place and govern the international exchange of data and information in specific domains (e.g. meteorology, infectious diseases or radiological protection). Many of these have provisions for, or are specifically focussed on, access during crises. However, even where such frameworks exist, making them operational requires international networks of trusted institutions and/or individuals. Where such frameworks are absent, or not formally activated, informal relationships and exchange between trusted partners in different countries are critical.

### **Main recommendations**

Policy action in five main areas would improve the provision and use of science advice in international crises.

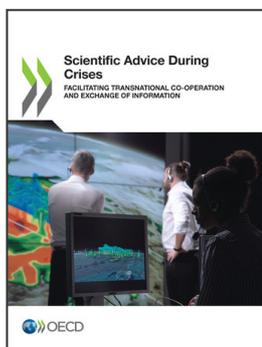
First, there is a need to strengthen domestic capacity for scientific advice in crises. National mechanisms for providing scientific advice should be established, in particular for sense-making in complex and novel crises. Information and lessons learned during crises needs to be recorded and disseminated. Furthermore, the international community could help interested countries develop and improve their systems for using scientific advice during crises.

Second, there is a need for clear communication and exchange across national boundaries and effective frameworks to facilitate this, including identifying and sharing both international and domestic contact points for co-ordinating scientific advice during trans-national crises.

Third, steps should be taken to promote greater understanding and trust between providers and users of scientific advice, both at national level and across borders. Regular interaction, as well as the exchange and mobility of interested individuals from different institutional settings and countries, should be encouraged. Relevant international science networks could be considered part of the infrastructure for crisis response.

Fourth, adequate preparation is crucial. Regular drills and exercises bringing together both crisis managers and scientific advice providers should be held at domestic and transnational level. Mutual learning and training programmes for novel, complex trans-national crises should also be developed and tested with input from both communities.

Finally, communicating scientific advice to the public in crisis situations should be part of a broader communications strategy, with clearly defined responsibilities. In the case of trans-national crises, communication strategies should ideally be co-ordinated across countries. The use of social media and online tools for gathering and communicating information from and to the public during crises requires further experimentation.



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