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Scientific Advisory Systems

Lessons from Peru

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Executive Summary

In an era where policy-making is increasingly complex and interconnected, the need for strategic knowledge and scientific advice has never been more critical. This study, developed from a project implemented by OTT Consulting for the British Council in partnership with Peru's national science council, delves into the intricacies of scientific advisory systems, with a particular focus on Peru.

Drawing from international experiences and a series of semi-structured interviews with key actors in Peru, the study then offers an insightful analysis and forward-looking recommendations for enhancing the use of scientific advice in policy-making in the Global South.

Key Findings:

1. International insights: The review highlighted the variability of advisory systems across countries, reflecting different policy-making regimes and cultural traditions. Their effectiveness is significantly influenced by historical, institutional, and political contexts. Notably, the distinction between science for policy and policy for science emerged as a critical factor in understanding the advisory landscape.
2. Peruvian context: In Peru, the National Council of Science, Technology, and Innovation (CONCYTEC) is earmarked to lead the development of a scientific advisory system. Despite efforts such as specialist working groups and training workshops, a cohesive national system remains absent, hindered by structural challenges and limited public official capacities.
3. Demand and supply of scientific advice: Interviews in Peru revealed that on the demand side, a personalised and sometimes biased understanding of scientific advice prevails, often limited by the capacity of public officials. On the supply side, a diversity of entities is engaged in scientific generation and advice, though coordination and systematic collaboration appear lacking.

Recommendations:

- For governments, especially those without established advisory systems, recommendations include establishing formal advisory bodies, enhancing inter-sectoral coordination, building evidence-use capacity among officials, promoting open access to research, and fostering public-private partnerships.
- For funders and evidence-use practitioners, the focus should be on supporting policy-relevant research, facilitating knowledge exchange platforms, investing in capacity building for evidence-use, advocating for collaborative research models, and strengthening independent evaluation mechanisms.
- To avoid the imposition of a single, idealised model of scientific advisory systems, the report advises international funders to deeply understand the local context, adopt flexible funding models, strengthen local capacities, promote inclusive stakeholder engagement, support policy experimentation, and underscore local ownership.

About this report

This report has been adapted from a series of studies conducted to inform the design of a scientific advisory system for Peru as part of a project implemented by OTT Consulting for the British Council: "Newton Professional Development and Engagement programme: to create a Scientific Advisory Unit in Peru". The project was conducted in 2020-2021.

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Acronyms and abbreviations

AGM	Alimentos Genéticamente Modificados	Genetically Modified Foods
CSA	Chief Scientific Adviser	Chief Scientific Adviser
CONCYTEC	Consejo Nacional de Ciencia, Tecnología e Innovación	National Council of Science, Technology, and Innovation
GIZ	Cooperaciones Alemana al Desarrollo	German Development Cooperation
DRE	Dirección Regional de Educación	Regional Education Directorate
DIRESA	Dirección Regional de Salud	Regional Health Directorate
GORE	Gobierno Regional	Regional Government
INEI	Instituto Nacional de Estadística e Informática	National Institute of Statistics and Informatics
INIA	Instituto Nacional de Innovación Agraria	National Institute of Agricultural Innovation
INS	Instituto Nacional de la Salud	National Institute of Health

MINEDU	Ministerio de Educación	Ministry of Education
MINSA	Ministerio de Salud	Ministry of Health
OCGIS	Oficina de Cumplimiento de Gobierno e Innovación Sectorial	Office of Government Compliance and Sectoral Innovation
OSEE	Oficina de Seguimiento Estratégico y Evaluación	Strategic Monitoring and Evaluation Office
OCDE	Organización para la Cooperación y el Desarrollo Económico	Organisation for Economic Co-operation and Development
PCM	Presidencia del Consejo de Ministros	Presidency of the Council of Ministers
RUNIS	Repositorio Único Nacional de Información en Salud	National Unique Health Information Repository
S&E	Seguimiento y Evaluación	Monitoring and Evaluation
ESCALE	Sistema de Estadística de la Calidad Educativa	Educational Quality Statistics System
GIS	Sistema de Información Geográfica	Geographical Information System
SINACYT	Sistema Nacional de Ciencia y Tecnología e Innovación Tecnológica	National System of Science, Technology, and Technological Innovation
UNMSM	Universidad Nacional Mayor de San Marcos	National University of San Marcos
UPCH	Universidad Peruana Cayetano Heredia	Cayetano Heredia Peruvian University

1. INTRODUCTION

Governments face an increasingly complex, dynamic, and interconnected policy-making environment. Due to the pace of technological, environmental, and cultural advances, policymakers are continually challenged to find new solutions for increasingly complex problems, requiring governments to increase their strategic capacity. Governments need strategic knowledge to be able to develop a combination of flexibility and innovation while simultaneously needing the capacity to develop and maintain long-term strategies in uncertain and unstable environments.

To meet these challenges, governments need the expertise, opinions, and information of a wide range of actors. This requires a knowledge infrastructure that can go beyond the confines of the units that government agencies possess.

Scientific advisory systems emerge in respond to this need. They consist of advisory councils, ad hoc commissions, research commissions, foresight units, public and private universities, research institutes, and think tanks, among other bodies, all providing knowledge and scientific advice to the government. They offer scientific advice to policy:"the process, structures and institutions through which governments and decision-makers receive and consider science and technology inputs to public policy development" (Quirion, Carty & Jabr, 2016).

The institutional design of the scientific advisory system in a country is partly the result of institutional history but can also be the result of clear policy changes, such as the recent creation of productivity commissions in countries as diverse as New Zealand or Mexico, or the establishment of independent organisations. Crucially, scientific advisory systems vary between countries (Glynn, Cunningham, and Flanagan, 2003), and there isn't a one-size-fits-all approach that countries can adopt once and for all.

The biggest challenge is to ensure that the information, expertise, and viewpoints of the advisory system are translated into the decision-making and policy formulation process effectively, taking into account the institutional characteristics of each country.

In Peru, entity charged with leading the development of the scientific advisory system is the National Council of Science, Technology, and Innovation (CONCYTEC), which is also the leader of the National Policy for the Development of Science, Technology, and Technological Innovation (STI). According to Supreme Decree No. 015-2016-PCM, the National Policy for the Development of STI consists of a set of guidelines aimed at strengthening and improving the performance of the country's science, technology, and technological innovation, the implementation and execution of which falls on all the entities that make up the National System of Science, Technology, and Technological Innovation (SINACYT) and is mandatory for all State entities at all levels of

government according to their competencies. The SINACYT aims to ensure the articulation and coordination among actors related to STI, focusing their efforts on meeting technological demands in strategic priority areas to increase added value and competitiveness, improving the quality of life of the population, and contributing to the responsible management of the environment.

However, despite initiatives led by CONCYTEC, such as specialist tables (working groups) to boost publication in specialised journals, training workshops in scientific advice for public officials, and legislation efforts to strengthen the governance of STI, Peru does not yet have a national system of scientific advice. Moreover, these efforts are limited by structural factors inherent to the public function and the capacities of public officials.

This report has been adapted from a series of studies conducted to inform the design of a scientific advisory system for Peru as part of a project implemented by OTT Consulting for the British Council: "Newton Professional Development and Engagement programme: to create a Scientific Advisory Unit in Peru". The project was delivered between 2020 and 2021. While the political context in Peru has changed since, the findings and lessons presented in this report continue to be relevant to the field.

To develop the proposed system, the authors undertook a review of systems across the world which informed a deep-dive into the demand and supply of scientific advice for policy in Peru.

This report includes a short review of the international experiences on the implementation of scientific advisory systems, and the systematisation of the interviews with the users and suppliers of scientific advice. It also includes recommendations for models of scientific advice to promote better-informed policy drawing from the lessons learned in Peru.

This document is structured as follows: i) section 2 presents a synthesis of a mapping of international experiences and a review of advisory processes in various countries around the world focused on fields such as education, law, trade, human rights among other topics, ii) section 3 presents the systematisation of semi-structured interviews with senior management actors in the public sector (demand for scientific advice) and generators of scientific evidence and managers of the main research centres, think tanks, and multilateral organisations (supply of scientific advice and evidence) and iii) section 4 presents general recommendations to be considered by governments and evidence use practitioners and funders– particularly in the global south.

2. MAPPING OF INTERNATIONAL EXPERIENCES

This section draws from the study on scientific advisory systems which informed the original project. The findings of that study were published in: “Scientific advisory systems: experiences from across the world” (Morales, 2022).

Definition of scientific advice

Scientific advice refers to the institutions and practices through which governments and decision-makers receive and use science and technology as inputs for the development and execution of public policies in different fields (Quirion, Carty & Jabr, 2016). Most scientific advice exercises focus on areas such as health, food and nutrition, technology and innovation, and the environment. However, expert advisory processes also take place in fields such as education, law, trade, and human rights, among other topics.

The advisory system is only a part of the broader ecosystem of knowledge generation, communication, and use in a country (OECD, 2017). All actors in the knowledge generation and use system interact differently and at various levels. While the advisory system interacts with some actors more than others, as in the case of government advisory systems, other system actors must have a learning role that allows them to "absorb" the knowledge and experience from scientific advisory processes. For this to be possible, there must be other institutional structures that allow the absorption of experiences and knowledge transfer to all system actors.

International experiences

The review of international experiences included countries such as the United Kingdom, Canada, Germany, Spain, Chile, Colombia, and Brazil. The choice of countries was informed by both the preferences of the Peruvian officials as well as the authors’ assessment of the relevance of their models for Peru.

No system by itself can be considered a perfect model that can be transferred to another context and achieve the same results. A characteristic of advisory systems and the entities that comprise them is that they are highly dependent on their environment and are the result of historical and political processes that deliver varying results in different political knowledge regimes.

Political knowledge regimes

The review of cases was preceded by a reflection on the nature of political knowledge regimes (PKR). Adolfo Garcé defines PKRs as systems that arise from the interplay between the policy-making regime and the general appreciation of science within a political system. These regimes influence how research impacts public policy, differing significantly between countries as close as Chile and Uruguay due to variations in political factors, social value of science, and the role of experts and civil society in policy-making processes.

Garcé et al. (2018) identify two variables to contextualize the PKR:

- The type of policy-making regime, which can be centralised or decentralised.
- The predominant cultural tradition, which is the general appreciation of science in the political system. This variable helps to understand why there is a demand for specialised knowledge in some countries and not in others.

Table 1. Typology of political knowledge regime

		Predominant cultural tradition	
• Type of policy-making regime	Centralised	I Technocratic Elitism	II Plebeian Majoritarism
	Decentralised	II Tecnocratic Pluralism	IV Plebeian Pluralism

Source: Garcé et al. (2018)

1. **Technocratic Elitism** (Type I): Characterised by centralised, rational governance where political parties rely heavily on expert advice, making academic knowledge crucial for government roles. In Latin America, for example, Chile exemplifies this model, reflecting a German-like valuation of science.

2. **Technocratic Pluralism** (Type II): Features a pluralistic, rational environment with a competitive marketplace for ideas, significant academic influence, and valued social science research. Brazil is a prime example, in Latin America.

3. **Plebeian Majoritarianism** (Type III): Combines centralization with anti-intellectual tendencies, using research mainly to legitimise political decisions without fostering a competitive ideas market. Argentina fits this category.

4. **Plebeian Pluralism** (Type IV): Involves pluralism and anti-intellectualism, leading to low specialized knowledge use and politically dominated idea markets. Uruguay illustrates this type, with politics overpowering technical rationality.

We conclude that, depending on the sector, Peru is primarily a plebeian majoritarianism, where public policy formulation is highly centralised and there is a high level of anti-intellectualism. This, as Garcé, D'Avenia López, & Villegas explain, does not imply that experts are never consulted, but typically they are used mainly to legitimise decisions that have already been made.

In this sense, we find that the PKR of Germany is decentralised and technocratic, while the KPRs of the United Kingdom and Canada (to a lesser extent) are centralised and technocratic. Spain may oscillate between technocratic pluralism and plebeian majoritarianism.

Different models for scientific advice for policy

One of the fundamental differences between advisory systems in Europe and Latin America is that scientific advisory systems in the analysed European countries, except Spain, focus mainly on the function of science for policy.[1] The entities responsible for setting guidelines and strategies related to policy for science (i.e., STI policies) have structures independent of advisory entities. In the case of Spain and Latin American countries, scientific advice to the government plays a secondary role within the entities that govern the science and technology sector (ministries/secretariats/offices of science, technology, and/or innovation). The scientific advisory entities in these countries are usually part of Ministries or other public offices and their main function is to internally advise the activities of these government bodies. In Latin America, scientific advisory entities are mostly ad hoc and, as shown during the Coronavirus emergency, have been created to respond to crises.

The models reviewd in this section have been updated since 2020 as a consequence of the COVID-19 pandemic – and some are undergoing reforms at the time of writing this report. This illustrates the point that scientific advisory systems are dynamic.

[1] In 2024, Spain launched the Oficinal Nacional de Aseosramiento Cientifico, under the auspices of the national government.

United Kingdom and Canada: individuals or institutions

The United Kingdom and Canada's systems are characterised by having the position of Chief Scientific Adviser (CSA), which has a role in articulating science and policy. In the United Kingdom, the CSA position is accompanied by CSAs at the ministerial or departmental level, which has facilitated the coordination of actions at various government levels (Glynn, Cunningham & Flanagan, 2003; Gluckman, 2014). In Canada, this role has been adopted at various times in history. It has recently been reintroduced as a mechanism to articulate an advisory system considered uncoordinated and that has not managed to align the efforts and activities of different advisory entities. In Canada, the CSA's functions have been somewhat extended, and it has been tasked with strengthening the integrity of scientific practice in the public sector, developing codes of practice and guidelines, and developing scientific skills in younger people (Quirion, Carty & Jabr, 2016; Canadian Government Executive, 2016).

An important element of the scientific advisory system in Canada worth highlighting is the role of the National Research Council. This entity is established as a government agency that reports to Parliament through the Ministry of Innovation, Science, and Industry. The National Research Council is an interesting case because it fulfils dual functions. On the one hand, it provides scientific advice to the government. On the other hand, it carries out extended activities that include a component of interaction and knowledge transfer to the private sector through the management of patents, licences, and the channelling of research funds. Semi-independent research centres, aligned with the national government's strategic priorities, are part of the National Research Council.

Germany: compex yet effective

Germany's system, for its part, is highly effective but extremely complex and is made up of multiple entities and advisory networks. The German experience can be considered complex and difficult to replicate, especially considering the budgetary limitations that such a system might entail. However, one lesson from the German scientific advisory system is the importance of establishing advisory systems that, regardless of their complexity, are transversal to all levels of government and decision-making. A balance between formal structures and sufficient flexibility is necessary so that entities can request and use evidence according to their specific needs. In Germany's case, this balance is achieved through specialised advisory commissions that cover key topics such as the environment and climate change and that advise government entities at various levels of government (Glynn, Cunningham & Flanagan, 2003; Gluckman, 2014).

Spain and Latin America

The Spanish system has similarities with Latin American advisory systems in that advisory activities are usually regulated by the Ministry of Science, Technology, and Innovation. Advisory entities in Spain have broader functions and cover activities such

as promoting the innovation and research system, professionalising the scientific career, and allocating public funds for research. The Spanish system also has a strong component of research dissemination and prioritises science communication to the public (Diez Bueso, 2013). Significant changes have taken place in Spain after COVID-19, including new regulation frameworks, such as a new law of science or the institutionalisation of policy evaluation and new actors, such as the Parliamentary Office for Scientific and Technological Advice and the National Office for Strategy and Foresight (Real Dato & Cañibano 2024). In June 2024, the National Officer for Scienceitif Advice was launched by the President of Government.

Chile, Brazil, and Colombia have scientific advisory systems that had undergone recent changes before COVID-19. In general, the priority of Latin American systems has been to strengthen the science, technology, and research ecosystem and to promote the State's capacity to generate robust research and evidence for decision-making. In all cases, a significant part of the advisory entities' functions is focused on generating links between different knowledge ecosystem actors, especially actors from the private sector and academia. Advisory entities in Latin America maintain close ties with the government. Usually, the members of these entities are appointed by the president or the minister of the sector. One of the most significant challenges of having advisory entities close to the government is the limited independence these advisory entities may have (Minciencias, 2020).

In the selected cases, we find that the advisory entities in Latin America are highly centralised and still face challenges in including local visions in the production and use of science. Some countries, like Colombia, have started to address these challenges by creating governmental bodies mandated to promote the production and use of science at the subnational level.

General characteristics and preconditions for success

As demonstrated by the cases studied, scientific advisory systems are composed of various entities, mandates, and organisational structures that include:

- Government entities: for example, members or entities of the public service such as political advisors or strategy and advisory units that are part of the formal structures of the government.
- Entities close to the government but not part of the public service (at arm's length): for example, advisory bodies, commissions, councils, institutes, and research funds. Entities of this type operate within the government but usually function as autonomous or semi-autonomous entities.
- Entities external to the government: for example, universities, think tanks, research institutes, trade unions, citizen committees, among others.

In the cases studied, we looked at any preconditions, if any, for establishing a scientific advisory system. The review identified the following:

- To some extent, the existence of a critical mass of scientists, scientific research organisations, and STI institutions is expected.
- The existence of a legal framework and organisational structures that allow the creation of advisory entities and ensure their independence. If the entities already exist, legal frameworks must permit their operation, and access to funding, and must allow some flexibility.
- The existence of accountability mechanisms for both public service and scientific activity. In any case, there must be or should be promoted a culture of transparency that allows evidence to be used transparently and be accessible to the public.
- Established channels for communicating science and making expert advice public should exist but can also be created without conflicting with existing institutions or structures.
- Vertical and horizontal policy coherence. This prevents the duplication of functions and decisions being made in silos and without knowledge of actions/decisions in other areas. Somehow, however, the scientific advisory system can support the coordination of policies.
- The degree of political leadership and demand for scientific advice drives the development of systems with increasing proximity of science to policy.

Adaptation and change

Finally, it is essential to analyse how scientific advisory systems adapt in turbulent periods of crisis and high uncertainty, as recently experienced with the COVID-19 pandemic. In this sense, the review of scientific advisory systems in the mentioned countries leaves the following conclusions:

- It is essential to have guidelines and structures that guide crisis responses. This can save valuable time and significantly improve a country's response capacity. A good example of this is Germany.
- Countries without independent advisory entities or with advisory entities without clear functions created expert councils late in the crisis evolution process, compromising not only their response capacity but also their public image.
- The lack of clear guidelines on how advisory entities should be formed, their functions, their limits, and how they interact with the government made decision-making difficult during the crisis. These situations were visible in Colombia, Brazil, and Chile.
- Although many of the analysed countries were overwhelmed by the nature of the crisis, Ministries of Science, Technology, and Innovation, especially in Spain, Chile, and Colombia, used their installed capacity to offer services and products such as access to public funding for innovation, platforms to access scientific evidence, articulation of key actors, among other activities.
- In the case of Spain, this experience has been channeled into the design of a new scientific advisory role.

The next section presents the systematisation of the semi-structured interviews conducted with users and suppliers of sicnetific advice in Peru. The section begins with users of scientific advice to understand their demands and the use they give to such information and then analyses the supply of scientific advice by examining the processes of information generation and the articulation between actors.

The interviews and the analysises were guided by the findings and principles described in this section.

3. SYSTEMATISATION OF SEMI-STRUCTURED INTERVIEWS WITH USERS AND PROVIDERS OF SCIENTIFIC ADVICE

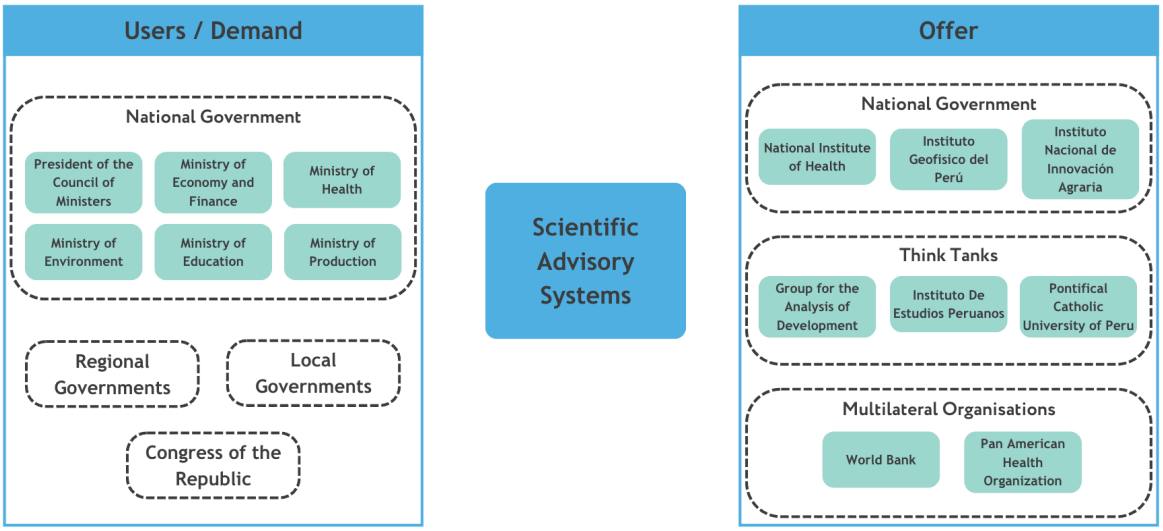
This section presents the main findings of the analysis of 31 semi-structured interviews with actors (see Annex 1) from the broad scientific advisory system, classified into two groups: i) Users or demand, comprised of entities that will use the generated scientific information in their decision-making processes (National Government, Regional Governments, Local Governments, the National Congress), and ii) Supply, comprised of entities generating scientific information (mainly research institutes, think tanks, and multilateral organisations).

According to the review of international experiences, it is evident that there is an evolution in the models of scientific advice. Advice adapts based on the demands of the users, who are the principal reasons for having a system of scientific advice in the first place.

Subsequently, and considering the needs collected from this first group of interviews, interviews were conducted with the supply and/or generators of scientific advice in September 2020.

It is important to note that the semi-structured interviews took place in August and September 2020 – and likely respond to a unique moment in time for Peru. This project took place in the middle of the COVID-19 pandemic and a deep-seated political crisis that has since brought about a significant weakening of the counry's National System of Science, Technology, and Technological Innovation.

Figure 2. Actors represented in the interviews



Source: Developed by authors

Demand for Scientific Advice

In this subsection, we present the findings obtained from the systematisation of interviews with the actors who use scientific advice. The findings are generally linked to individual, organisational and/or institutional, and systemic factors.

Finding 1: Users of scientific advice have a biased definition of the role

It is noteworthy that most interviewees interpreted scientific advice in a limited and biased manner based on their professional and disciplinary life experiences. When asked about cases where they could use scientific advice, most referred to, for example:

- Information or data generated by monitoring and evaluation (M&E) processes used to target a public service.
- Evidence or results from studies or evaluations of policies or programmes, mainly developed by social scientists.
- Qualitative and critical information about the political economy of a public policy process.

This contrasts with the effort to strengthen and finance scientific capacity led by Peru's national science funding body, CONCYTEC, with an emphasis on production in natural sciences and engineering. In the few cases where natural sciences were consulted to inform decisions, we found that decision-makers had an affinity for their disciplinary

background or a previous relationship with the scientific entity or the scientists consulted.

Finding 2: There is personalised demand for the use of scientific advice; it depends on the person in charge of the entity or position

In the National Congress, the use of scientific evidence for decision-making is currently primarily the prerogative of congresspersons, influenced by their professional profiles and networks, their legislative agendas, and the capacity of their advisory teams. Although there are institutional resources (e.g., the Library of Congress offers access to academic resources), these are seldom used, and there is a preference for information that can be provided by the central government through informal and formal consultations with the relevant sector. Accordingly, it is the prerogative of each congressperson, for example, as chair of a committee, to invite experts or form working groups with experts (including scientists) to inform the development of a law.

Similarly, the most senior members of government (i.e., ministers and deputy ministers) have the prerogative to have a scientist on their work team. In the rare cases where this occurs, it is expected that this scientist is asked for specific evidence to be used in the public policy decision-making processes. However, it is uncommon to conduct a validation process of the provided evidence with other information sources. Furthermore, considering that the work of senior officials is intensive in human resource management, they are practically limited to participating in existing and/or formal relationships, so their access to scientific advice is limited if they do not have a scientist within their teams or in a significant position within the entity.

In successful cases we have identified, officials have had to act as public entrepreneurs, seeking and connecting actors who can contribute to the development of a policy or project. This has required the use of existing connections to access sources other than the official ones.

Finding 3: Public policy makers have limited support capacity for evidence-based policy management

The leadership and advisory teams of the entities interviewed consist of professionals with extensive experience in the public sector. However, current advisory teams have limited specialised knowledge in natural sciences and engineering, with a predominance of professions related to social sciences and law. It was also mentioned that it is difficult to find professionals with the required analytical skills and competencies, as the required profile is quite rigorous and competes with the private sector or research institutions, which offer researchers more autonomy. Another problem is that not all staff are proficient in English at an intermediate and/or advanced level, so they have difficulties understanding and exploiting academic

literature and direct advice in English. This creates limitations for accessing scientific evidence, as the most up-to-date research documents are in English, and very few have a translated version.

In some cases, specialised directorates of ministries have extensive support for knowledge management initiatives for their officials and senior members of government. For example, the Office of Government Compliance and Sectoral Innovation (OCGIS) of the Office of the Prime Minister (PCM) had the convening power to hold technical meetings with High-Level Management actors from public entities related to government priorities to present the importance and utility of having primary source data on the progress and achievement of results of priority policies. On the other hand, at MINEDU, the modernisation of educational policy offered an opportunity to implement significant reforms in terms of M&E and evidence management, as it was observed that most areas or directorates are increasingly seeking to produce and use quality evidence in decision-making to improve their interventions and achieve their specific results. However, in both cases, the initiatives were still in the initial phase, and specialised teams could not necessarily access and use various scientific sources.

Also, the constant changes in senior members of government lead to staff rotation, resulting in knowledge loss and talent drain. This instability does not encourage the participation of scientists in these roles.

Finding 4: Users of scientific information have limited intermediation or coordination capacity

The scientific information requested by senior members of government for the public policy formulation process (e.g., design of strategies, plans, projects, etc.), regional governors, or congresspersons are primarily requested from the specialised areas in each entity or sector. The areas vary depending on the organisational structure of the entity, but they are generally the Economic Studies Directorates and the Monitoring and Evaluation Directorates. These areas generally have as their main functions to conduct the preparation of studies and research that support the design of policies and to promote the delivery of studies and baseline measurements, intermediate evaluations, and impact evaluations of the entity's interventions.

Not all public entities in the national government have a specialised office and/or directorate for information analysis, which depends on the sector's capacity to generate regular information and the use given to it in the decision-making process. For example, the Ministry of Health (MINSA) has the National Unique Health Information Repository (RUNIS), and the Ministry of Education (MINEDU) has the Educational Quality Statistics System (ESCALE). Both systems are fed by the entity's administrative records and provide periodic information for decision-making.

On the other hand, there is a clear lack of coordination between the national government and sub-national governments. Firstly, regional and local governments have a large amount of information at their disposal, scattered across various offices, such as the Regional Education Directorates (DRE), the Regional Health Directorates (DIRESA), and the Regional Productive Development Directorates, among others. This information is generally used for the preparation of progress reports and accountability but not for planning and designing public policies. There are also certain discrepancies between the data available within the different offices of sub-national governments, so this information must be validated before it can be correctly used. A clear symptom of this lack of coordination between both levels of government was manifested during the COVID-19 pandemic when the statistics of confirmed cases and deaths reported by MINSA were different from those reported by the DIRESA, generating confusion about the real magnitude of the pandemic at the regional level. In this regard, the national government must provide support to sub-national governments to manage their information optimally.

Another critical aspect is the limited use of scientific evidence for the design of public policies at the sub-national level. Although regional and local governments generally follow the guidelines established by the sub-national government in a given sector, it is increasingly common to see authorities who disregard these indications and act in search of political gains. This situation was again manifested during the COVID-19 pandemic, with some local authorities disregarding the COVID-19 care protocol approved by MINSA and recommending their citizens follow treatments that had no scientific basis (e.g., using chlorine dioxide).

In other cases, research initiatives are presented at the sub-national level, but they do not have financial support for their execution. In the interview with officials from the San Martín Regional Government (GORE), the collaboration between the National Agricultural Innovation Institute (INIA) and the Regional Government for conducting a genetic research study on the *piñón* and its possible transformation into biodiesel was mentioned. Considering the importance of this applied research project for the region and given that INIA did not have the financial resources to conduct the research, the GORE covered the research and project management costs and sought the support of the German Development Cooperation (GIZ) and Dutch Cooperation to provide technical support and international learning opportunities for conducting the research project.

Finding 5: The preferred sources of information for searching and compiling scientific evidence by decision-makers are official sources, followed by multilateral organisations, academic entities, and research centres, among others, that are close to or known by the users

Generally, the requirements for scientific information are classified into two groups: i) quantitative information that includes the behaviour of indicators and the development of projections and scenarios, and ii) qualitative information related mainly to the implementation of interventions, for which the analysis of national (if the intervention has already been executed in the national territory) or international (if the intervention is new to the country) experiences is usually resorted to. Also, the demand for evidence generally focuses on social scientific evidence, for example, related to economic aspects.

In response, the specialised areas within the entities use two sources of information for knowledge generation: i) systems with primary information, and ii) secondary information sources. Although having primary information constitutes an advantage for the sector (e.g., RUNIS in MINSA and ESCALE in MINEDU), they generally have the disadvantage of not producing periodic and updated information, so it is necessary to resort to other information sources for knowledge generation.

Regarding secondary information sources, the interviewees confirm that they prefer research documents, policy notes, or direct advice offered and/or prepared by independent research centres, multilateral organisations, or embassies (e.g., World Bank, Inter-American Development Bank, among others), and specialised organisations (e.g., non-governmental organisations, private associations or trade unions). When asked how these non-official sources are chosen, most interviewees described the existence of previous relationships, existing programmes or projects with cooperation agencies, or the approach of specialised organisations.

The preference among the interviewees is definitely for official sources (from the relevant sector). This is partly because they are formally obliged or feel obliged to use official information, and with limited resources or time to consult other sources, they limit themselves to the same.

Generally, the evidence generated by official (sectoral) sources comes from monitoring and evaluation (M&E) activities. Most entities have areas or directorates that conduct M&E activities for the interventions they are responsible for, in addition to areas such as the Office of Government Compliance and Sectoral Innovation in the Presidency of the Council of Ministers (PCM) and the Office for the Measurement of Learning Quality in MINEDU, which are in charge of institutional M&E tools for the entity, such as the control boards of indicators associated with government priorities in PCM and the School Censuses and Student Census Evaluations in the education sector. Additionally,

the National Institute of Statistics and Informatics (INEI) is also responsible for collecting information through various national surveys.

Although the M&E efforts identified in the entities analysed are important, it is not clear how they contribute to systematically monitoring and evaluating the most important variables or indicators for the effective implementation of the interventions under each entity's responsibility. The apparent weak strategic orientation and low coordination of the actors mean that such efforts may be unnecessarily costly (e.g., when more than one actor is measuring the same thing) and not very relevant for decision-making, both for improving the management of interventions and for a better distribution of the budget among the most effective and relevant interventions for achieving the results set by the entity. It then happens that in cases of crisis, such as COVID-19, the existing data is not of sufficient quality or suitable for decision-making.

As mentioned before, few structured and systematic monitoring efforts have been identified. This does not mean that monitoring or tracking activities are not carried out, but such activities do not have indicators that have been constructed according to a logical framework, since many of the directorates of the interviewed entities do not have logical models for their interventions; the indicators or variables that are monitored are also not part of a system with routines where the performance information contained in the indicators is reviewed at an established frequency for tactical and strategic decision-making.

The information collected, therefore, primarily results in passive statistical summaries, with no connection to decision-making. In other cases, they are an important source of information for management corrections, but only at an operational level. Nevertheless, there are some good monitoring practices being implemented or planned. For example, the Strategic Monitoring and Evaluation Office (OSEE) of MINEDU conducts the "School Monitoring" intervention, which seeks to replicate successful monitoring experiences from Pakistan and the United Kingdom, where the key features of this type of monitoring action are the prioritization of indicators, definition of targets and trajectories, high frequency of primary information collection (this does not necessarily have to be the case when timely and quality information systems are available) that provides the capacity to react for the correction of implementation trajectories, and routines of progress verification with high-level officials for decision-making.

In the case of evaluations, it is not clear how they are selected or how they are articulated with the monitoring actions or the management cycle of the interventions under a common criterion across all directorates. For example, an implementing agent would be interested in evaluating the intervention or a part of the intervention when they have identified a gap or an implementation barrier, so that the evaluation (which would need to be rapid) could provide elements that help to resolve it. The gap could be at the level of results, coverage, or processes, which would lead to triggering different types of evaluations. Obviously, there are evaluations, such as impact evaluations,

whose maturation is lengthy, and the motivation to conduct them is more oriented towards validating the effects of the interventions on the desired outcomes. However, emphasis should also be given to the other types of evaluations (those more coordinated with the intervention management cycle), otherwise, there is a risk that the M&E area becomes a think tank rather than a strategic area for the implementation of educational policy.

In conclusion, decision-making bodies tend to prefer official sources and generally limit their consultation to them. In cases where they consult additional sources, this is done following a principle of familiarity or opportunity.

Finding 6: There is little knowledge about and disarticulation between users and the supply of scientific advice

There is a marked lack of coordination and disarticulation between entities that carry out and use scientific research. This problem occurs more frequently between entities that do not belong to the same sector and/or level of government, such as MINSA and public universities, or even between scientific institutes affiliated with different sectors and ministries.

To exemplify this point, let's take the case of MINSA. In the health sector, scientific evidence has been used to adjust existing programmes, for example, the National Strategy for Healthy Eating and Nutrition of MINSA through the Plan to Fight Malnutrition and Reduce Anaemia required the National Institute of Health (INS) to study the effectiveness of a community intervention to improve adherence to micronutrient powder supplementation.

The study identified barriers to supplementation at different levels. The recommendations generated by the study allowed the modification of the Sanitary Directive on Supplementation, which includes the extension of micronutrient delivery windows at health establishments and incorporates community agents in the monitoring of micronutrient consumption (MINSA, 2016). Another example of the use of evidence in health policy refers to the need for MINSA to determine the adverse effects of genetically modified foods (GMFs) on human health. The systematic review conducted by the INS concluded that the available scientific evidence was not sufficient to determine that the consumption of GMFs does not generate adverse effects on human health. Consequently, Law No. 29811 and its regulation were promulgated, establishing a moratorium on the entry and production of living modified organisms (LMOs or transgenics) into the national territory for 10 years (MINSA, 2011; INS, 2011).

However, when the INS was working on developing an antivenom serum, it contacted the World Health Organization (WHO) to explore alternatives for the production and refrigeration of the serum to facilitate its transport to Amazonian areas. As a result of

this request, the INS contacted international professionals (United Kingdom, Chile, Argentina, and Brazil) who informed that there were initiatives working with this serum at the National University of San Marcos (UNMSM). Finally, as a result of the joint work between the INS and UNMSM, a joint project was worked on for the processing of this serum. However, this work could have been executed more efficiently if the INS staff had been open from the outset to opinions from experts from other entities, in this case, universities such as UNMSM or Cayetano Heredia Peruvian University (UPCH), to generate synergies in the research projects undertaken by these.

Other examples are found in the response of the central government to the needs of migrating Peruvians during the first months of the pandemic when thousands of people decided to leave Lima and return to their regions of origin. The information needed to respond to the needs of the migrants' regions and the vulnerable populations that remained in Lima was disaggregated at different levels of government (e.g., MIDIS and Lima Municipality), across various sectors, service provision entities (e.g., SEDAPAL), and non-governmental organisations.

In this regard, the literature indicates that there must be close coordination between entities that generate scientific research and evidence, such as universities and research centres, and executors, which involves all public sector entities (Pfeffer and Sutton, 2006; Rynes and Bartunek, 2017). In particular, through incentive mechanisms, an alignment should be sought between the research agendas of universities and/or research centres and the demand for scientific evidence from policymakers to ensure that the evidence generated by specialised entities is useful for public entities. In addition to universities and research centres, it is important to highlight that this coordination and articulation should occur among all the different types of scientific advisory entities according to their functions and their participation in the public policy formulation process (Glynn et al., 2003).

Supply of scientific advice

In this subsection we present the findings obtained from the systematisation of interviews with the actors generating scientific information and advice. The findings are generally linked to personal, organisational and/or institutional, and systemic elements.

Finding 7: There is no formal description of the scientific advisor

Unlike the scientific profession (which is currently regulated and classified through RENACYT), there is no clarity about the role of the scientific advisor. As mentioned before, for users, it seems useful to consider them as distinct functions. But it is not clear what the limits between them are.

For example, at the sub-national level, the demand is for scientists who 'wear rubber boots' (referring to those who work outside the laboratory and interact with potential beneficiaries of their work) but also with clear specialisation. At the national government level, on the other hand, broad knowledge is prioritised.

Among the interviewees, some qualities of scientific advisors can be highlighted, starting to outline specific characteristics. According teo the interviewees they possess, for example:

- Experience and recognition in the field of science
- Broad scientific knowledge (e.g., not limited to a single discipline)
- Expertise in translating scientific evidence into policy-relevant advice
- Skills in managing relationships with stakeholders, including policymakers, the media, and the public
- Ability to communicate complex scientific concepts in an accessible manner

These characteristics suggest that scientific advisors not only need to be experts in their scientific field but also skilled in communication, stakeholder management, and policy translation.

Finding 8: Scientific generation and advisory entities are diverse and include public, private, non-profit, and international organisations

The entities most commonly recognised as evidence generators and providers of scientific advice by the interviewees are public research institutions, public and private universities, international organizations, and specialised NGOs and activists.

Interestingly, the private sector was not recognised by the interviewees as a provider of scientific advice, but rather as a provider of specialised information. This reflects what was found in the international cases. The entities of the advisory systems include various entities with varying degrees of closeness to the public and private sectors. In the Peruvian case, however, these entities do not constitute a system that works coherently and focused on producing or communicating science to support decision-making.

Finding 9: Scientific generation and advisory entities do not coordinate systematically

Coordination among advisory entities is limited and depends on the relationships that may exist between the leaderships of the entities, research teams, or those belonging to the same sector. The case of the lack of coordination between the INS and UNMSM described above illustrates this finding. The same is observed in the limited collaboration between the International Potato Center (CIP) and INIA – or with the

Universidad Agraria La Molina, just a few meters away from each other and working on very similar issues.

Interviewees also reported limited vertical integration, for example, in the specific case of technology transfer to the private sector, partly due to the lack of clarity of the role of each actor in the transfer chain. According to interviewees with experience in technology transfer cases, there should be complementarity between the parties. For instance:

- Universities conduct basic scientific research
- Public or private research institutes conduct applied research to public or private needs
- The Technological Production Institute (ITP) and the CITES act as brokers with users of the practical applications of scientific or technological developments – either to inform public or private decisions or to inform the priorities and agendas of the institutes and universities.

In practice, however, this coordination does not occur, and in an ad-hoc manner it is more common for institutions like the ITP or the institutes to get involved in roles that do not formally correspond to them.

This is partly because there are no permanent and official spaces for exchange and dialogue between these actors and the users of scientific advice.

Finding 10: Entities responsible for providing advice mainly receive requests to conduct studies or evaluations of interventions carried out by the users

Despite the mission of generating or providing scientific advice independently of users, typically, the first stage of interaction with policy-makers is the request for advice. The actors requesting policy advice, whether a minister, deputy minister, and/or another senior official, can also determine what is requested in terms of content, specifying the research question and the timeline, and they may even indicate the desired policy options.

This demand is exerted in different ways depending on the relationship the decision-makers have with the entities.

For instance, in the case of research institutes or M&E offices, advice is mainly provided through official channels. This can be through information requests, the presentation of studies or evaluations, or the formation and/or participation in research projects or advisory spaces at the request of another public entity (for example, a regional government or a committee of the National Congress). In these cases, advice is typically given privately and in response to the government's agenda.

Similar is the advice provided by international cooperation agencies or embassies, which, due to their status in the country, must maintain a supportive relationship with the Peruvian State. According to interviewees, however, foreign agencies are more likely to incorporate their agendas into the advice they provide to the government. In the case of multilateral organisations, requests made by National Government entities were made formally, with the format specified in some form of law or regulation. In some cases, these requests are also made through informal, unwritten requests. In the latter case, the advisory process is less transparent, as the lack of documentation makes it unclear and difficult to track what has been requested by the government and what has been suggested by advisory bodies without a prior government request.

In the case of universities or think tanks, the advisory relationship can be contractual, through consulting contracts (e.g., in the case of policy evaluations or appointing researchers as advisors) or ad honorem (e.g., as in the case of advisory groups convened by MINSA during the pandemic). In both cases, advisors try to maintain their independence by appealing to the existence of institutional or personal scientific research agendas funded by other sources.

Most interviewees indicated that the research question is specified in the request from government agencies and focuses on the effectiveness of the interventions they implement. However, the specificity of the advisory request does not necessarily influence the discretionary space of policy advisory bodies to design their research and advisory programmes according to their perspectives and interests. For example, think tanks like GRADE and IEP manage an independent research line from the government, where research topics are determined based on the country's information needs and what issues have not yet been sufficiently addressed by previous research. Likewise, most interviewees indicated that the requests also define the desired policy options that should be covered by the advice.

This implies that in many cases, the government not only indicate the research question but also anticipate the possible outcomes of the advice it demands.

An interesting case is that of NGOs or civil society groups that articulate the relationship between decision-makers and scientists. These cases were reported in Congress, where precisely there are few cases where the Parliament also requests advice.

Finally, evaluations are usually financed by the entity itself. In the case of multilateral organisations (e.g., World Bank and World Health Organization), the loan programs they execute with the Peruvian government allocate a percentage of their funds (around 5% on average) for conducting a series of evaluations of their interventions, and these are generally carried out in three stages: at the start of the project (baseline), during the project execution (mid-term evaluation), and at the end of the project (results evaluation and impact evaluation).

This finding suggests a de facto advisory relationship between the Central Government and a certain number and type of organisations. This is replicated in each sector. But this advice is primarily passive and dependent both on the question or requirement for evidence and on funding.

Finding 11: Existing scientific generation and advisory entities seek to maintain a distant relationship with politics and public policy decisions

As mentioned in the previous section, most advisory requests typically come from the relevant ministries or the cabinet. In turn, most advice is also directed to ministers, followed by the cabinet. This implies that the advice is directed to a main ministry and that the policy recommendations focus on the political responsibilities of this ministry.

Therefore, existing scientific advisory bodies, especially those close to the public sector, seek clear demarcations between their respective advisory functions and policy formulation. These bodies can support different policy options and argue in favour of certain policy choices but ultimately recognize that it is the politicians who have to decide which policy option is chosen. Of course, it is also possible that politicians choose an option that is not even included in the advice provided by advisory bodies. For example, members of the Fiscal Council of the Ministry of Economy and Finance (MEF) saw the projections on the level of tax collection and informality as unrealistic. However, despite the Fiscal Council's warnings, the MEF stuck to its projections, which were included in that year's Multiannual Macroeconomic Framework.

Finding 12: The absence of clear and systematic processes for providing scientific advice has generated effective alternatives

The review of international experiences showed that timing and opportunity are crucial factors for the influence that scientific advice can have on decision-making and policy processes. However, clear and systematic processes that help to shorten the time or the distance between advisors and users are limited.

This has encouraged the search for alternatives. For example, the advisory groups formed to support MINSA during the pandemic (e.g., the Ministry of Health's working group on technological innovation for COVID-19 care or the *Social sciences thematic group for a new coexistence*) have allowed for scientific advice to the Ministry and, through it, to the Cabinet. Unlike the specific demands for evidence or advice, these groups involve a medium or long-term relationship without a definitive agenda or terms of reference, allowing advisors to influence the government's agenda.

This is also evident in the working groups formed by parliamentary commissions or high-level commissions (e.g., on political reform or the new mining law) convened by the central government.

At the sub-national level, regional development agencies offer a similar alternative. The agencies convene local (and national) government actors, local academia, the local private sector, and other civil society actors. In this space, it is possible to identify current and future information and advisory priorities and strengthen relationships between the parties.

These initiatives denote a way in which the system functions experimentally, promoting flexibility, dialogue, transversality, independence, and long-term horizons.

4. RECOMMENDATIONS

In conclusion, the review of the field of scientific advice, international experiences and the specific case of Peru, offers guiding guiding principles to develop practical recommendations:

1. Althoigh the advice is that the scientific advisory system should respond to the logic of *science for policy*, in practice it may be that they are subordinate to the function of *policy for science*. Thus, the professional practice of policymakers and advisors needs to be considered.
2. Notheless, *science for policy* systems must ultimately be designed from the needs of decision-makers.
3. The system can combine elements of centralism and hierarchy with decentralised and networking elements.
4. Systems must be cross-cutting, avoiding disciplinary, sectoral, or regional silos. Thus, we must avoid limiting the definition of science to certain disiplines or focusing on the needs of one level of government over others.
5. Systems must be flexible and must incorporate a learning and adaptation function. Hence, their design must consider the changing roles of users and suppliers of advice.
6. Finally, systems should establish clear and transparent fundamental principles for advisory entities and processes - including the independence of advisory services - to strengthen trust in scientific advice and evidence.

Furthermore, the findings from the Peruvian case study identified key characteristics of both the supply and demand for scientific advice. In particular, on the demand side (users), it is necessary to generate capacities to adequately incorporate scientific advice into the public policy formulation process. On the supply side, entities generating scientific knowledge must maintain an agenda more linked to government needs – yet remain independent.

Likewise, coordination and articulation problems were detected in both groups, as well as the need to establish an agenda oriented to specific objectives rather than discretionary decisions of the people in charge of each of the entities of the system.

The case of Peru offers recommendations for governments, and the funders and practitioners of evidence use.

This section explores some of these recommendations.

For Governments (with no or weak advisory systems)

1. **Establish formal advisory systems based on how evidence is produced, communicated and used in their contexts**: Governments should establish formal scientific advisory systems that are independent yet closely aligned with policy-making processes; in practice. These systems could include advisory councils, committees, or chief scientific advisors, depending on the model that best works for them.
2. **Advice should be sought widely**: The systems much at least aim to bring together experts from various fields and sectors to provide multidisciplinary and multi-sectoral perspectives on policy issues.
3. **Enhance coordination and integration**: The systems should aim to strengthen the coordination between different levels of government and various sectors to ensure a cohesive approach to using scientific advice. This could involve setting up interdepartmental committees or working groups in and outside of government that facilitate the exchange of information and collaboration on common issues.
4. **Build capacity for evidence use**: To make a difference, the systems must be accompanied by the development of training programmes and resources for public officials at all levels to enhance their understanding of how to use scientific evidence in policy-making. This includes improving data literacy, understanding scientific methodologies, and learning how to critically evaluate and apply research findings. Rather than one-off workshops, partnerships with universities or national civil service schools would ensure the sustainability and scalability of these efforts.
5. **Promote open access to research**: Equally important is promoting and facilitating the accessibility of scientific research to researchers and policymakers by, for example, promoting open access policies or fostering partnerships between government and research institutions and scientific publishers.
6. **Foster public-private partnerships**: Leverage partnerships with the private sector, academia, and non-profit organizations to enhance the scientific advisory ecosystem – beyond the State's capacity. These partnerships can provide additional expertise, resources, and innovative approaches to addressing policy challenges.

For funders and evidence-use practitioners

1. **Support nationally driven efforts to design scientific advisory systems**: Funders in particular should encourage and support efforts by national public or private actors to develop scientific advisory systems.
2. **Work with the current actors**: Even if there is no formal system, there is an informal one. This informal system has developed to address the needs and preferences of policymakers and the policymaking sector. Therefore, efforts to support the development of a formal system should start with what and who is there already.
3. **Support research aligned with policy needs**: Whether through a formal system or not, funders should prioritise research that addresses pressing policy challenges and is directly applicable to policy decisions. This involves directly supporting local research funding and research bodies with a greater understanding of local needs as well as closer collaboration with governments to understand their needs and align research agendas accordingly.
4. **Facilitate knowledge exchange platforms**: At the heart of any system is the interaction between its members. Therefore, funders and practitioners should support to develop platforms and forums that enable the exchange of knowledge and best practices between scientists, policymakers, and practitioners. These platforms can help bridge the gap between research and policy by promoting dialogue and mutual understanding.
5. **Invest in capacity building**: Support capacity-building initiatives for both researchers and policymakers to enhance their skills in evidence generation, communication, and use. This includes training in policy analysis, stakeholder engagement, and effective communication of scientific findings; ideally by investing in the capacity of universities and national civil service schools with the potential to deliver at scale.
6. **Promote collaborative research models**: Encourage collaborative research models that involve policymakers, community stakeholders, and researchers from the outset. Such models ensure that research is grounded in real-world policy contexts and that findings are more likely to be adopted and implemented.
7. **Strengthen independent evaluation**: Fund and support independent evaluations of policies and programmes through existing or relevant official evaluation bodies – that often exist in governments at the ministerial level- to provide objective assessments of their effectiveness. This can help build a culture of evidence-based decision-making and accountability within governments.

Of particular concern is that large global evidence-use funders may impose a single, idealised model of scientific advisory systems across different contexts. To avoid this, international funders and evidence-use practitioners should consider several strategies, as suggested by the insights from this study:

1. **Contextual understanding**: Funders should invest in gaining a deep understanding of the local context, including cultural, political, social, and

economic factors that influence how scientific advice is received and used in policy-making. This involves comprehensive country or regional studies and consultations with a broad range of local stakeholders; which can be ideally delivered by working through and with local stakeholders.

2. **Strengthen local capacity to continuously improve the models**: Focus on building local capacities of local stakeholders in scientific research, policy analysis, and evidence-based policy-making, and the design and management of scientific advisory systems themselves. This includes supporting local educational institutions, research organisations, and policy think tanks to develop the necessary skills and knowledge within the country to lead the long-term evolution of their systems. This can be done by making scientific advice and evidence-use more broadly a researchable subject through long term research funding.
3. **Flexible funding models**: Adopt and support flexible funding models that allow governments to adapt and update their systems to local needs and conditions rather than supporting one-off designs. Funders should also be open to supporting innovative and contextually relevant approaches that might differ significantly from practices in other settings.
4. **Promote inclusive stakeholder engagement**: Encourage the inclusion of a diverse range of stakeholders in the design and implementation of scientific advisory systems. This should encompass government officials, researchers, civil society organizations, and the private sector to ensure that multiple perspectives are considered and that the advisory system is broadly supported.
5. **Encourage South-South cooperation – without neglecting lessons from more developmed and better resourced models**: Facilitate exchanges and collaborations between countries in the Global South to share experiences, lessons learned, and best practices in establishing and operating scientific advisory systems. South-South cooperation, especially beyond regions, can provide relevant insights that are more attuned to the challenges and opportunities in similar developmental contexts and can help countries make better use of good practice from the Global North.
6. **Support policy experimentation and learning**: Fund initiatives that allow for policy experimentation and iterative learning within the systems. This approach acknowledges that there is no one-size-fits-all solution and that policies and advisory systems may need to be continuously adapted based on evidence and feedback.
7. **Emphasise local ownership**: Ensure that projects and initiatives are locally owned and driven, with international funders playing a supportive rather than directive role. This helps build local commitment and sustainability of the scientific advisory systems beyond the funding period.

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Annex A: List of interviewees (role at the time of the interview in 2020)

Demand for Scientific Advice

Below is the list of officials interviewed for this document, grouped into three groups: (i) National Government, (ii) Sub-national Governments, and (iii) National Congress.

National Government

- Mercedes Araoz Fernández – Former President of the Council of Ministers (August)
- Juan José Leguía Alegría – Former Head of the Office of Government Compliance and Sectoral Innovation of the Presidency of the Council of Ministers (August)
- Raúl Molina Martínez – Former Vice Minister of Territorial Governance of the Presidency of the Council of Ministers (August)
- Carlos Oliva Neyra – Former Minister of Economy and Finance (August)
- Patricia García Funegra – Former Minister of Health (August)
- Elsa Galarza Contreras – Former Minister of the Environment (August)
- Marilú Martens Cortés – Former Minister of Education (August)
- Jorge Mesinas Montero – Executive Director of the National Programme of Scholarships and Educational Credit of the Ministry of Education (August)
- Rosemary Cornejo Valdivia – Executive Coordinator of the Innovate Peru Programme of the Ministry of Production (August)
- Carla Aguilar – Director of the Directorate of Research, Development, Innovation and Technological Transfer, Technological Institute of Production of the Ministry of Production (August)
- Edgardo Cruzado Silveri – Secretary of Decentralisation of the Presidency of the Council of Ministers (August)

Sub-national Governments

- Yamilia Osiorio Delgado – Former Regional Governor of Arequipa (August)
- Diego Mercedes Briceño – Deputy Manager of Planning of the Regional Government of San Martín (August)
- Yzia Encomenderos Bancallán – Former Manager of Productive Development of the Regional Government of San Martín (August)

National Congress

- Juan Sheput Moore – Former Congressman of the Republic (August)
- Francisco Sagasti Hochhausler – Congressman of the Republic and President of the Commission for Science, Innovation and Technology (August)
- Alberto de Belaunde – Congressman of the Republic (August)

Supply of Scientific Advice

Below is the list of officials interviewed for this document, grouped into three groups: (i) Research Institutes, (ii) Think Tanks, and (iii) Multilateral Organisations.

Research Institutes

- Hans Vasquez Soplopuco – Head of the National Institute of Health (September)
- Juancarlos Cruz Luis – General Director of Supervision and Monitoring at the Agrarian Experimental Stations of the National Institute of Agricultural Innovation (September)
- Yamina Silva Vidal – Director of Atmospheric and Hydrosphere Sciences at the Geophysical Institute of Peru (September)

Think Tanks

- Santiago Cueto Caballero – Principal Researcher at the Group for Development Analysis (September)
- Roxana Barrantes Cáceres – Principal Researcher at the Institute of Peruvian Studies (September)
- Waldo Mendoza Bellido – Member of the Fiscal Council of the Ministry of Economy and Finance (September)
- Agnes Franco Temple – Researcher at the Pontifical Catholic University of Peru (September)
- Bram Leo Willens – Director of Projects at the Water Competence Centre (September)
- Graham Thiele – Director of the Consultative Group for International Agricultural Research (September)

Multilateral Organisations

- Livia Benavides – Program Leader for Human Development at the World Bank (September)
- Mónica Pun Chinarro – National Consultant in Emergencies and Disasters at the Pan American Health Organisation (September)
- Celso Bambaren Alatrista – Advisor in Emergencies at the Pan American Health Organisation (September)

Others

- Fabiola León Velarde – President of the National Council of Science, Technology and Innovation (September)
- Gisella Orjeda Fernandez – Former President of the National Council of Science, Technology and Innovation (September)

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