Improving the science-policy interface on water – how a new global mechanism could inform policymakers for more efficient and sustainable water governance[1]

Summary

This paper explains the purpose and function of a global-scale science policy mechanism and recommends key features of:

- **availability** of global level assessments and information that can be downscaled;
- **accessibility** from the pursuit of efficient, low-cost solutions;
- **quality** from state of the art in science and integrating traditional and other knowledge systems;
- **stability** from continuous assessment;
- **relevance** by addressing the demonstrated needs of policymakers;
- **boundary conditions** and how individual actions accumulate into larger scale changes and global and regional drivers on the state of water and impacts at a local level and recognize the influence of the global and regional drivers at a local level; and
- **ownership** through inter-governmental decision-making and oversight.

1. Scope and Objective

This blueprint paper addresses the need for a mechanism for optimizing the use of existing scientific tools and knowledge in support of water-relevant policymaking. It aims to identify the key common challenges in policy- and decision-making towards the achievement of the water-related targets of the Sustainable Development Goals (SDGs) in particular, but also for sound water management in general, where scientific knowledge and tools can make a difference.

It responds to three critical gaps between knowledge and practice depicted in Figure 1: (i) a gap between the problems faced and the state of scientific knowledge; (ii) a gap between science and the existence of policy innovations; and (iii) a gap between the existence of policy innovations and the implementation of those innovations, and (iv) a gap between the disparity of rapidly rising number, severity, and complexity of problems and the much more slowly rising implementation of policy innovation. All of these superimpose themselves to create a major obstacle for evidence-based decision-making.

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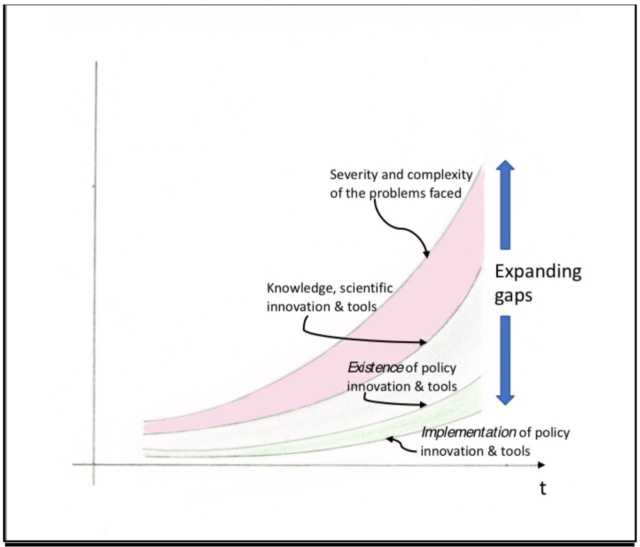
Figure 1: Expanding Gaps



Source: Varady, R. G., Houdret, A., & Buytaert, W. for current paper)

This paper is structured as follows. First, it includes examples that reflect the state of the art in science-informed policymaking, Second, it discusses the availability and level of maturity of the tools and the real-world data including current science mechanisms and topics.Third, it explains where science-based information and an evidence-based approach support effective political decision-making, leading to:

- improved societal wellbeing,
- more efficient and inclusive resource allocation,
- avoided environmental externalities, and
- increased short- and long-term economic performances under increasing risk and uncertainty.

This support can be provided at the national and local levels, in an iterative and ultimately transformative manner. The blueprint concludes with a set of criteria used against possible delivery mechanisms in support of policymaking in the management of water resources and related services.

This paper aims to show that the **appropriate use of available scientific tools prepared through a global process,** including for co-production of knowledge, can assist decision makers in significantly improving water outcomes at national and local levels.

Accordingly, the paper makes a case for a global assessment mechanism that can analyze complex states and impacts, develop projections and scenarios, and provide assessments on anticipated consequences. This can be achieved by harmonizing and making use of the data and information derived from various sectors, disciplines, and levels. The paper explores how such a mechanism would enable countries to align their actions with the global? state of water (and associated resources) and current and future trends in key drivers of change. This will support them in making their own assessments and decisions under increasing risk and uncertainty.

The paper advocates how, based on and combined with a global assessment, effective policies at the national and local levels can be informed by carefully selected, strong examples of successes and failures and supported by solution-oriented scientific tools and approaches. As such, a global assessment mechanism would consist of national scientific communities and other knowledge producers, both contributors and beneficiaries.

The case is made for addressing the need for science and for tapping the opportunities to make science of *all relevant disciplines* readily, coherently, and consistently available for policymaking. Adequate, up-to-date and accessible water and water-related knowledge is a global common, as it is much needed for timely and informed decision-making coherent and consistent across sectors and disciplines under accelerating changes and challenges. Likely, modalities will inform the design of a global mechanism that can cater to member states and stakeholders. This will facilitate the achievement of globally agreed targets, including those of the 2030 Sustainable Development Agenda. The scope of the blueprint is guided by the following two motives:

i. Informing and supporting policy (for decision-makers) by providing relevant knowledge and tools needed to point out potential consequences of different decision options. Sound policy- and decision-making is based on multiple inputs underpinned by knowledge-based evidence. Evidence, comes in various forms involving local and indigenous knowledge, experience, traditions, beliefs, observations, and anecdotes; in short data and information of various types. Science provides some of this, assists in interpreting other evidence types, and identifying future needs, trends and scenarios, and yet remains detached from many non-scientific knowledge sources. Policy professionals and decision makers have to incorporate most, if not all, knowledge and evidence in their work. They must consider multidisciplinary science dimensions ranging from natural sciences and engineering to economics and social sciences to understand the different types of knowledge to inform this process.

ii. Focusing on supporting *solution-oriented deliberative processes*, rather than on merely describing and identifying problems. Solution-focused approaches abound, are necessary and useful for purposes of raising awareness, setting political agendas, and for taking and describing “snapshots” for problem identification. The solution-focused approach taken here entails understanding the interlinkages, causalities, and trends; dealing with complexities; assessing interactions and impacts; and providing insights into possible futures and offering tools for managing risks and uncertainties in ecological, socio-political and economic dimensions.

2. **Science-informed Policy: A Focused Look at Demand and Supply**

The science-policy interface is marked with the challenges, and opportunities, in harmonizing and merging data and information from sectors and global issues, addressing horizontal and vertical integration, and aligning state of research and policy. This section makes a case for science-policy partnership by establishing the basis, elements, and examples of ’demand‘ from policymakers from various sectors and at all levels, and then linking those to the ‘supply’ from science, by illustrating the capabilities and the tools that the scientific community has to offer.

Perceptions of national water leaders from 88 countries around the world, 55 of whom were at the Minister or Agency head levels, highlighted the greatest risks and challenges to maintaining or achieving good water management in their country. (Water Policy Group, 2021).The leaders ranked the four greatest risks as matters outside their government’s control: climate change, increasing demand for water, droughts, and floods. They ranked their four top challenges, viewed as matters generally within their government's control: inadequate infrastructure/conflict between water users (tied), and fragmented water institutions/inadequate laws and regulations (tied). When the leaders were asked about the reasons for the SDG 6 targets being difficult or impossible to achieve based on the five accelerators, i.e., financing, governance, capacity, data/information, and innovation, the two top reasons emerged as: lack of funding, and governance problems for majority of the targets. While lack of capacity and lack of information ranked in the following top two, lack of innovation did not emerge as a strong reason.

Policymakers deal with these challenges as an inherent part of their work and must address policy questions that depend on the specific circumstances facing them subject to the broad policy priorities, constraints, and other factors such as diverging stakeholder interests.

As mentioned, policymaking involves multiple inputs, of which evidence is a particularly important one. Evidence available from science is the realm that this blueprint covers. In addition to providing evidence, science can also support its inclusion in decision-making by providing knowledge and tools on governance mechanisms and their underlying political economy.

A review of literature on science-policy interlinkages may point to some common, key issues that policymakers face consistently, where they would benefit from scientific support and information.

2.1. Complexity and Interdependencies

Global changes—whether natural or human-induced—result from a mix of factors and tend to intensify due to the interdependencies and interlinkages of accelerating drivers. These factors are complex, non-linear, and cumulative, with both short-term and long-term consequences (Funtowicz & Ravetz 2001; Haas 2004). As stated by Pahl-Wostl (2007), 'In many cases different goals are in conflict,' complicating attempts to manage resources in an integrated manner. This convolution of forces requires a broad accounting of often incompatible spatial and temporal scales. This is especially the case for managing water. Hence decision-makers, often representing discrete sectors where water plays a role, may be unprepared to face the large array of interacting variables that can lead to water insecurity (Varady et al., 2021).

To effectively approach the inherent complexity of water-related factors and the multiplicity of possible objectives, solutions must be identified with reference to the specific socio-ecological system (SES), i.e., a nested, multi-level system in which ecological and social elements co-evolve through bidirectional interactions and feedback loops (Binder, 2013). The identification of the SES should be based upon meaningful boundaries, which in general may coincide with a river basin, but which should also take administrative and national borders into account, as well as underlying aquifer boundaries. The proper identification of the system (SES) allows for a scientifically and institutionally sound consideration of all the main variables, actors, and processes, and of internal and external interconnections, their feedbacks, nonlinearity, heterogeneity, uncertainty and emergent properties (Berkes & Folke, 1998; Folke, 2016). Therefore, the water-defined SES is also the functional unit adopted for understanding and managing the interdependencies among human and natural interacting elements and between the system itself and the external drivers around its boundaries. The Social-Ecological System Framework (SESF) proposed by Elinor Ostrom (McGinnis & Ostrom, 2014; Ostrom, 2007; Ostrom, 2009) can be a reference for the integrated study and governance of water resources in complex SESs.

It has become increasingly evident and recognized in both scientific and policy communities that the security of water, energy and food cannot be assured independently of each other. In the medium- and long-term, prioritizing the achievement of food or energy security to the detriment of water security will inevitably lead to increasing risks and a degradation of resilience of the interconnected resource systems. The WEFE nexus aims at a holistic approach to different policy fields from the outset (Benson et al., 2015). In this connection, the Water-Energy-Food-Ecosystems (WEFE) nexus has increasingly been promoted as a promising approach to overcoming governance failures in dealing with complex and interconnected resource management challenges. The nexus should be governed with a focus on interaction between policy fields which will support a reframing of the problem perspective. This can lead to more balanced negotiations of interests between sectors and engage diverse actors. A systemic concept of addressing security from a WEFE nexus perspective can help operationalize abstract notions and allow the development of meaningful indicators at different levels and for diverse social groups (Pahl-Wostl, 2019).

Addressing governance and coordination deficits requires more than implementing individual policy instruments: it requires a transformative change of interconnected governance systems. Pahl-Wostl (2019) argued that the process of implementing the SDGs offers great opportunities to develop momentum in the transformation towards sustainability if nexus perspectives are adopted. This requires focusing on goal and target level interactions, and the availability of a globally recognized set of indicators to monitor overarching progress.

While the value and the benefit of nexus approaches as well as the use of the goal and target level interactions in the SDG suite are extensively recognized, their use in policymaking remains scant and relevant coverage remains largely under-addressed.

2.2. Fragmented Information

Fragmented information not only relates to the availability of knowledge on the physical status and evolution of water resources, but also to the socio-political and cultural factors affecting water use and governance. Water governance has already been identified as being at the heart of the water crisis in the inaugural *World Water Development Report* (UNESCO and UN-Water, 2003) and continues to be a major impediment to national water leaders in achieving their goals (Water Policy Group, 2021). While manifold approaches and tools exist to define and operationalize water governance (Jiménez et al. 2020; Akhmouch et al., 2018; Benson et al., 2015) in addition to synergistic combinations of different governance modes in complex social-ecological systems (Srigiri et al., 2022), obstacles to sustainable and inclusive water governance are still not sufficiently addressed.

Research shows that even when water policy goals are clear, design choices of implementing institutions are deeply political (Huitema and Meijerink, 2017). Socio-economic interests and power structures, cultural perceptions, and asymmetric rights and responsibilities that reach far beyond the formal setting of water governance impact how decisions are made and implemented (Cleaver, 2012; Wang et al., 2022). Together with structural features including ecological and socio-political framework conditions, these often less visible ‘rules of the game’ considerably influence the shaping and outcomes of water policies. Water governance approaches that solely refer to the formal institutional ‘enabling environment’ therefore fail to identify and subsequently address other factors that may lead to elite capture, corruption, or other spoilers (Oberhauser et al., 2022; Houdret et al., 2022).

Political economy approaches address this gap by explicitly analyzing different actors' roles, interests, and incentives through analytical concepts such as stakeholder and institutional analysis, social network analysis, and analysis of collective action problems (freeriding; exit, voice and loyalty) and others. These approaches not only enable a broader understanding of water governance, but also support designing water policies to incentivize change in a specific setting.

While the political economy is increasingly seen as a crucial factor of success or failure of development interventions, related approaches are still underrepresented in water policy design and implementation. Supporting decision-makers in the water sector with political economy approaches, tools and research results would therefore be a valuable scientific underpinning to solution-oriented policy making. In addition to established stakeholder analysis, relevant approaches include tools to assess power relations in general (Lukes, 2005; Gaventa, 2016) and in specific fields of the water sector for example governance of transboundary waters (World Bank, 2017; Feitelson, 2016), groundwater (Molle et al., 2019), water and sanitation (Harris et al., 2011), or water in ecosystem services (de Francisco, 2014).

2.3. Issues of Scale

Scales are multiple and interconnected, involving spatial and temporal dimensions and analysis levels (Cash et al., 2006; Gibson et al., 2000; Lippe et al., 2019). Even if the analysis unit and level of the solution-oriented approach is usually the river basin and its socio-ecosystem(s) (SES), scale issues pervade due to interactions with broader and nested scales, contributing to the intrinsic complexity of the dynamics over time. Understanding the dynamics of SESs across scales is crucial to support policymakers in policy design and sustainable management of natural resources, to explain interrelated processes within and across socio-economic and environmental subsystems. This includes causality (or interdependence) among them, and non-linear feedbacks that can be expected (Lippe et al., 2019). These feedbacks also include for example time lags, characterizing the behavior of SES in many cases, as there may be a substantial time difference between the action and the outcome. An example might be the approval of a new water related legislation, or the release of a technological innovation and the timing of their implementation, and its effect on the SES (Gain et al., 2021).

Regarding the Sustainable Development Goals, out of the total of 17 goals with 169 targets, SDG 6 is dedicated to water and has six targets. Many of these, such as sustainable access to safe and affordable drinking water (Target 6.1), are challenges for local and national administrations. Others, such as action Target 6a, which seeks to “expand water and sanitation support to developing countries,” are global aspirations. In both cases, decision-makers and administrators frequently confront interests that may be irreconcilable. The resulting trade-offs can lead to policies and practices that compromise the goals of an SDG target, limiting societal and environmental benefits or favoring some sectors over others. In their essay, Rethinking Water for SDG6,’ Sadoff, Borgomeo, & Uhlenbrook (2020) call for entirely new frameworks for guiding water policy and investments. But even with such new frameworks, how can effectiveness be measured when so many ingredients are able to affect outcomes? One possible answer is to devise appropriate quantitative and qualitative measurement modes at the onset of an activity. But accomplishing case-by-case evaluations may not yield satisfactory aggregate results. What is needed is a scaling-up approach to determine effectiveness.

The literature is replete with examples of scaling up health-related, educational, environmental, and even water-related interventions. Most of these approaches remain place-based and are not easily adapted to the global scale of sustainable development goals.

3. What Do Policymakers Need and What Can Science Provide?

Policymakers need to be able to test plausible solutions of a different nature (institutional, technological, social, etc.) in 'what-if 'analyses under uncertain future scenarios based on a rigorous verification and validation process. Such integrated modelling with the required capabilities for long-term analysis is only useful for policy makers if the rigorous verification and validation phase can be met. This retrospective validation of results still presents a limitation to the effectiveness and reliability of the outcomes, because of future uncertainties. A key issue are the emerging trends from co-evolving interaction of human/social and ecological systems. Recent events such as emerging new diseases (i.e., Covid-19), have shown us that emerging risks can substantially change our knowledge of responses of societies and socio-economic dynamics. Hence, more research efforts are needed to fully comprehend the behavior of societies and handle decisions under deep uncertainty.

A combination of efforts for creating a network of representative study areas with the highest granularity and functional representations of phenomena is needed, where research efforts may converge and thus further enhance our understanding of SES complexity to develop and test innovative integrated solutions (Giupponi et al., 2022).

As presented earlier in this blueprint, policy- and decision-making involves multiple inputs, including science-related ones. In this section, a mapping of risks, associated policy questions, and relevant scientific services are presented. Informed by the *National Water Leaders Survey* (Water Policy Group, 2022) a set of risks that water leaders need to address are listed in Table 1 and are mapped against a set of scientific services given in Table 2. A cross-tabulation of these is presented in Table 2, through a traffic-light rating system which shows the level of availability of scientific tools on a broad, non-specific basis.

Table 1: Risks to Maintaining or Achieving Good Water Management[2]:

1. Droughts
2. Floods
3. Climate change
4. Increasing demand for water
5. Water use by one or more upstream countries

[2] Informed by Question 3 in the *National Water Leaders Survey* (Water Policy Group, 2022, page 2)

6. Water supply commitments to one or more downstream countries
7. Unpredictable rainfall and inflow to dams
8. Poor water quality for household use
9. Poor water quality for other uses

Table 2: Kind of Scientific Service[3]:

1. Harmonized data and information
2. Monitoring, evaluation, assessments
3. Forecasts, projections, scenarios
4. Tools to assist with benefit and cost analyses and trade-off decisions
5. Social sciences tools (e.g., on community behavior)
6. Access to technology improvements
7. Case studies (e.g., demonstrating practical engineering, nature-based solutions, and indigenous approaches)
8. Capacity development of national scientific services
9. Information to underpin transboundary river basin management
10. Information to support crisis and disruption response options

Table 3: Availability of Scientific Tools Mapped against Risks and Services[4]
[PLEASE INSERT TABLE 3 HERE]

High	***Medium***	***Low***

Legend:

Building on the broad risks and services mapping in Table 3, a small subset of specific topics that emanate from some of the risks and challenges facing the policymakers are presented in Table 4, intended to demonstrate how the foregoing can be translated into specific key, policy-relevant questions exemplifying the policy "demand" at the science-policy interface, for science-based, solution-oriented water services, followed by tools, or the "supply" available to address these.

[3] Informed by Question 5 in the *National Water Leaders Survey* (Water Policy Group, 2022, page 3)
[4] Harmonized with Question 5 in the *National Water Leaders Survey* (Water Policy Group, 2022, page 3)

Table 4: Examples of Scientific Tools and Specific Policy Questions Addressed

[PLEASE INSERT TABLE 4 HERE]

High	***Medium***	***Low***

Legend:

It must be noted that the policy issues in Table 4 are presented for illustrative purposes and are not intended to be representative of the diverse and broad realm of policy. Likewise, the linkages to the services and risks are illustrative rather than prescriptive.

4. Global Governance Landscape in Science Advice for Policy

Across the world, water is governed locally, provincially, nationally, supranationally, regionally, and sometimes under transboundary conventions. However, water is not governed globally---at least not in an intentional, formal, official, centralized manner (Gupta et al., 2013). Furthermore, many of the policies and decisions impacting water are made in domains other than that of water (Ünver, 2008). Nevertheless, a generalized, benign form of global governance exists in the form of global water initiatives (GWIs). These international institutions comprise professional societies, intergovernmental and nongovernmental organizations, awareness-raising designated action periods, water-themed events and their declarations, specialized networks, and water-related publications. As a large, diverse body of independent but related organisms, they function as a repository of water-related information and science, a source and disseminator of new ideas, a venue for researchers and practitioners, and a channel for on-the-ground interventions. Taken as a whole, GWIs are in effect a form of autonomous, multi-nodal governance at a supranational level (Varady, Albrecht, et al., 2022; Varady, Meehan, et al., 2009).

Typical arrangements to institutionalize science advice for policy include offices, entities or roles such as Individual Chief Science Advisor, Science Advisory Office/Agency, Science Advisory Board, Science Advisory Council, and Academies (Gluckman et al., 2022). These may serve or be attached to ministries, governments, international organizations, or multilateral platforms. Compared to other policy areas such as climate change, the environment, biodiversity, and food security, science advice to policy in water-related matters is far less developed at sub-global (including national) levels, and non-existent at the global level.

Notwithstanding the composite effect of GWIs as an overarching schema of institutions with global water interests, the landscape of governance spanning national to global scale includes no adequate institutions or platforms capable of addressing the multiplicity of the issues or having capacity for science-policy engagement (Conca, 2006; Lemos & Agrawal, 2006; Hoekstra & Chapagain, 2008; Gupta et al., 2013; Pahl-Wostl et al., 2013). When it comes to taking concerted, concrete actions that transcend national interests and borders, water-related roles and responsibilities are spread across different institutions; as a result, science-policy linkages very seldom cut across the institutional, sectoral and geographical bounds. The exception might be to tackle a specific, place-based problem and an isolated effort, but seldom does this include pro-actively preventing negative trade-offs, for example, in implementing different water-related SDGs.

From a multi-governmental perspective, the United Nations (UN) system and mechanisms are no exception to the rule. The agendas of most UN agencies include at least some elements that relate to water. UN-Water was established in the early 2000s to fill a much-needed interagency coordination lacuna and direct some UN-level concerted actions- the most notable of which are the commissioning of the annual *World Development Reports* (Newton, 2014) and the Integrated Monitoring Initiative for SDG 6. In this landscape, each UN agency operates according to its specific mandate, based on the needs of (and accountability to) Member States through a global framework mechanism such as SDGs, the Sendai Framework, the United Nations Framework Convention on Climate Change (UNFCCC) processes, and the Committee on World Food Security (CFS), among others. In addition, other water-related international norms and conventions (such as on transboundary waters, the Human Right to Water, or the EU Water Framework Directive) target systems (such as the SDGs or the planetary boundaries), paradigms (such as River Basin Management and Integrated Water Resources Management (IWRM)) whereby private sector, public and civil society actors and initiatives contribute to shaping water policies (Herrfahrdt-Pähle et al., 2019).

4.1 Weak Horizontal and Vertical Science-Policy Engagement

Effective science-policy engagement requires a nexus of a diverse range of scientific and communities of interest to make decisions (Rogers & Hall, 2003). This is especially relevant to the water sector, which cuts across many governmental levels and sectors, such as the environment, health, energy and agriculture. The integration and co-production of knowledge among multiple and various disciplines and parties of interest are crucial to drawing solutions to some of our complex societal challenges (Quevauviller et al., 2005) or to addressing water-land-soil interactions through governance (Ünver & Mansur, 2019). Such integrated engagement has been at the forefront of many contexts for achieving SDGs and addressing global environmental issues, such as the World Summit on Sustainable Development (WSSD), the Millennium Ecosystem Assessment (MEA), and the UNFCCC (UNEP, 2009; Varis et al., 2014). However, in many instances, the lack of communication and coordination among these cross-sectoral actors hinders important and timely decision-making processes and outputs (Vargas et al., 2019).

Horizontal science-policy engagement focuses on coordinating multiple decision-making actors at the same levels to work on science-policy issues together (Lenschow, 2002; Rode, 2019; Vargas et al., 2019). In contrast, vertical science-policy engagement involves the interaction and collaboration across different levels of government and community actors, coordinating among global, national, regional, and local levels (Howlett et al., 2017). Vertical engagement processes have been the main challenge for decision-makers and communities across the globe (Le Blanc, 2021).
The lack of vertical science-policy engagement can cause disruptions in coordinating the needs and knowledge among various sectors and levels. In many cases, responsibilities among actors are left

unclear (Le Blanc, 2021). Decisions made without the consultation of lower government levels, stakeholders or multiple scientific disciplines create confusion on local needs and issues. Besides the challenges of institutional communication and coordination, other weaknesses of the lack of integrated engagement include sector fragmentation and mistrust, non-sustainable water management, the lack of or insufficient data (for instance, issues of reliability and accessibility), shortage of community members' participation and awareness, and shortage of funding and resources (Bakker & Morinville, 2013; Varis et al., 2014).

Some initiatives have been created to better support horizontal and vertical science-policy engagement. For example, the European Commission established the Water Framework Directive (WFD) in 2000 to provide a platform for actors from the EU member states, industry, agriculture, and scientists to share knowledge and perspectives in the water sector, and this is regarded as a critical avenue for sharing best management practices (European Commission, 2001; Varis et al., 2014).

Nonetheless, neither policy creation nor implementation is straightforward (Schmidt, 2008), but the inclusion of multidisciplinary and -sector engagement can better influence science-policy outcomes and prevent additional challenges (Newig & Koontz, 2014; Vargas et al., 2019). Both horizontal and vertical science-policy engagement processes are necessary for the management and governance of water (Varis et al., 2014). Many actors and sectors are interested in developing and implementing policies to improve societal conditions. By working together, actors in the water sector can learn considerably from the practices and knowledge within other related sectors (Varis et al., 2014), providing them with a breadth of understanding to assist decision-making formation and implementation.

5. A Global Science Mechanism to Inform Water-related Policymaking

This section builds on the case made so far and on the fact that for water—unlike in the case of the climate change, for which the Intergovernmental Panel on Climate Change (IPCC) was established in 1988—neither a platform, an entity, nor an arrangement exists tasked with delivering scientifically sound, periodic, and integrated assessments to inform policymaking, at supranational level to support national policy by governments and other stakeholders.

Fragmented decision-making mentioned earlier is also evident at the UN level. Water-knowledge is also dispersed and includes, among others, the World Water Development Report coordinated by the World Water Assessment Programme on behalf of UN-Water, the WHO/UNICEF Joint Monitoring Programme reporting on WASH targets, and the Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS) by WHO. Even if much of the knowledge generated here is now part of UN-Water's Integrated Monitoring Initiative for SDG 6, no mechanism similar to IPCC exists to comprehensively document and synthesize the current state of the art in water resources research. In addition to updates on the state and use of the resource, such a mechanism should also deliver best practices for sustainable and inclusive water governance.

Calls for global dialogue and an organized, accountable, and responsible mechanism have accelerated during the current pandemic: "… risk assessments will be wasted efforts unless there are major investments made in: i) strengthening institutional capacity, ii) building purpose-driven partnerships, iii) establishing a strong science-policy-public interface, and iv) robust monitoring, evaluation, and accountability mechanisms. Weak governance is, indeed, a driver of risk and unsustainable practices” (IIASA & ISC, 2021).

The Scientific and Technological Community Major Group (STC MG) stated in its position paper for the 2022 High-level Political Forum: “The lack of a mechanism to identify the key priorities and actions by which science can address the urgent issues of sustainability in a coordinated way is a great issue that needs to be urgently addressed. There is an obvious gap that needs new approaches, new funding and new mechanisms” (STC MG, 2022).

The design of a science advice mechanism is shaped by the principles of independence, legitimacy, relevance and access, diversity, and reducing uncertainty (ISC and INGSA, 2022). This ensures the science advice to policymakers to be ‘honest brokerage rather than advocacy’, capacity to engage with the relevant decision-makers, ensure context-specific diversity, and deal with uncertainty to establish what is known, knowable, and unknowable from relevant perspectives in support of policymaking.

The aim of the mechanism is to provide an overview of and go beyond existing knowledge in order to i) address the needs of different types of decision-makers at different levels, be they governmental, civil society or from the private sector, and ii) conceive knowledge creation and sharing in a broader way. The contribution that knowledge can offer to integrate conflicting views and values that hinder efficient and sustainable decision-making in the water sector is widely acknowledged (de Paula & Marques, 2022; Cepiku et al., 2020). Research also shows knowledge generated by co-production processes can support a broader shared vision, dialog, and trust (Landriani et al., 2022). As the authors of a recent literature review put it: “…knowledge management represents the most critical issue for local stakeholder engagement and accordingly, appropriate tools must be implemented to stimulate and encourage learning, sharing and transparency in devising and establishing paths and mechanisms” (Landriani et al., 2022). The (co)generation of knowledge can take various forms, such as knowledge emanating from cooperation in water use and management, generated by citizen science, or through specific research projects.

The science advice mechanism to be developed shall allow different stakeholders and decision-makers to contribute their relevant knowledge –an approach partly adopted in the data collected from national water leaders cited above or the in the monitoring of IWRM implementation – wherever feasible and meaningful. A global arrangement that addresses the institutional and other complexities, should also adress availability, accessibility, quality, and stability while applying the scientific tools or assessments. A carefully designed mechanism would make science available for policy and ensure the effective engagement of scientists and policymakers at all levels in a transparent and inclusive way.

For the materialization of the ideas presented in this blueprint, multilateral arrangements are possible, each with its specific aspects, strengths, and limitations. While a comparison of all possible arrangements and their significance for a 'science mechanism for water’ is outside the scope of this blueprint, a brief listing is provided in Annex 1.

Several institutions have developed Science-Policy-Interfaces (SPI), including subsidiary SPIs, with agendas set by parties to a convention (such as SBSTA of UNFCCC), and stand-alone SPIs with a designated governing body (such as the IPCC) (Kohler 2022). Analyses of existing SPIs highlight several factors of success, including composition, knowledge system influences, institutional structures, power differences of stakeholders engaged at scientific and policy levels, and contextual factors such as policy cultures, public support and knowledge validation (Kohler, 2022; Gluckman et al., 2021; Lidskog & Sundqvist, 2015). Last but not least, Gluckman et al. (2022) highlight the different expectations, interests and norms that need to coexist in SPIs irrespective of the formal design of the science-policy interplay: "Transdisciplinary insight and skills are needed to recognize and deal with tensions between robust evidence, values-based positioning, and normative arguments."

The United Nations Educational, Scientific and Cultural Organization (UNESCO) and Sustainable Water Future Programme of Future Earth has proposed a global science mechanism (UNESCO, 2023) for water as a game changer during the stakeholder consultation under the auspices of the President of the United Nations General Assembly (UNGA), held at the UN headquarters in New York on 24 October 2022. Such a mechanism will benefit from the intergovernmental platforms that a UN Organization can offer. It can engage Member States and non-state actors, including the scientific community, and partner with other UN entities. The arrangements can be informed by any, or some variation of the above-listed mechanisms, designed through consultations with relevant governance bodies. To this end, organized, well-designed science-policy dialogues supported by secretarial services have to be factored in as an integral part of the design.

The key decisions concern the global science mechanism's governance (UNESCO governance structure, existing UN platform or dedicated structure), its stakeholders (intergovernmental, multistakeholder, or custom-designed), engagement levels (who will nominate authors and reviewers, who will clear/adopt processes, reports, how national input will be incorporated) in addition to the key financial, administrative and bureaucratic aspects.

Recommendations

For the reasons given in this paper, it is recommended that a global science-policy mechanism be established incorporating the following dimensions. The intent is not to discredit the value of existing science-policy dialogues, entities, or programs. A global mechanism will not replace them or their value but support, enhance and complement existing initiatives.

a. **The availability dimension**: A global mechanism should ensure theapplication of the best available scientific tools, approaches and methods in a harmonized manner, providing compatibility between country-level assessments and global assessments as well as among local-national-regional levels and between country-level assessments. Water resources assessments, trend, trade-off and impact analyses, scenario and perspective studies, merits, drawbacks and disadvantages of options that inform policymaking seldom, if ever, contain elements that are currently confined to the boundaries of a sector or a country. Global-level assessments and the information thus produced should provide both a common platform and a shared language for everyone, making downscaling from global to regional to national possible and desirable for managing water resources in a global context.

b. **The accessibility dimension**: The global mechanism should make the best science available for everyone and make it more economical. A global arrangement would and should 'democratize' the best available science, making it accessible to countries that would have otherwise had difficulty producing or possessing it and it would "economize" this accessibility by providing a consolidated "service" as contrasted to the uncoordinated, potentially incompatible replications at smaller scales.

c. **The quality dimension:** A global mechanism would have the ability to engage the best teams from around the world and from different fields and disciplines in a coherent manner as contrasted to piecemeal efforts that seldom if ever, add up to a meaningful whole. Information coming from different fields and sectors would be incorporated properly and adequately. State of the art in science would be the standard. The mechanism also aims at integrating different types of knowledge, such as traditional knowledge, and will draw on related experiences from the Intergovernmental Science-Policy Panel on Biodiversity and Ecosystem Service (IPBES) and others.

d. **The stability dimension:** A global mechanism should ensure continuity in contrast to fragmented efforts, sectoral 'snapshots' inadequate to reflect changes occurring or the advances in science and technology.

e. **The relevance dimension:** A global mechanism should ensure that science addresses policy makers' key needs by providing access to knowledge and tools at global, national and local levels. An organized dialogue between scientists and policymakers incorporating all relevant disciplines and sectors would provide a platform where policy makers can frame key policy questions requiring global-scale science inputs. At this dialogue forum, the science community can also advise policy makers on what should be the questions policy makers should be asking of the science community. The dialogue forum will establish how the theme, scope and products will be identified and determined and how possible co-production, verification, accountability, and other functions will be carried out.

f. **Boundary conditions:** Both local and global sources of knowledge and information are imperative to understand the interconnected water security risks to humans, societies, and the environment. However, if the focus is only on local processes, then there is a risk of overlooking and neglecting global and regional dynamics with large impacts on humans and nature. A better understanding of boundary conditions on fresh water today is needed, particularly on how individual human actions at a local level add up to produce cumulative and cascading effects into larger regional, continental and global changes that have drastically changed water flows and storage, impaired water quality, and damaged aquatic ecosystems. The boundary conditions can reflect the externalities of local human actions (for instance, water withdrawal or land use change) at a larger scale. Also, a particular concern is that attempts to assess water situations only at a global scale may mask critically important and unique local contexts that influence water risks. Furthermore, any water assessment should recognize the influence of the global and regional drivers on the state of water along with impacts at a local level. This will produce the reciprocal benefits of considering different scales -- local, regional, and global -- as a continuum.

g. **Ownership dimension:** Governments will need to have collective ownership of and commitment to the process for the results of this mechanism to be trusted. Transparent, mutually agreed principles and processes will guide inter-governmental decision-making and oversight, similar to how the IPCC functions.

Annex: **Some Possible Multilateral Arrangements to Learn from for a Science Mechanism for Water**

For the materialization of the ideas presented in this blueprint, multiple combinations of the nature and the level of engagement by state and non-state stakeholders are possible, each with their specific aspects, strengths, and limitations. While a comparison and what each one could mean for a "science mechanism for water" is outside the scope of this blueprint, a brief listing is provided here covering IPCC, IPBES, United Nations Environment Programme (UNEP), United Nations Office for Disaster Risk Reduction (UNDRR), World Water Assessment Programme (WWAP), World Meteorological Organization (WMO), and WHO.

Intergovernmental Panel on Climate Change (IPCC, all information from https://www.ipcc.ch/)
Establishment, goals and primary role
The IPCC was established in 1988 under the auspices of the WMO and the UNEP with the objective of providing governments with scientific information for the development of climate change policies. To this end, it regularly publishes assessment reports and special reports on the issue of climate change and its current state, as well as on adaptation and mitigation. IPCC's primary role is to provide a scientific basis for governments at all levels to develop climate-related policies, which in turn underlie negotiations at the UN Climate Conference – Conference of the Parties to the UNFCCC.

Governance and hosting secretariat
The IPCC´s main bodies are the Panel, the Bureau, and the Executive Committee. The Panel is the main decision-making body. In its plenary sessions, the national delegations of the 195 member states (both government officials and experts) and observing organizations meet at least once annually to decide on the budget, work program, scope and topic of reports as well as to adopt reports. The Bureau provides support to the Panel on scientific and technical issues. The Executive Committee consists of the chairs and vice-chairs of the Plenary and the Working Groups and Task Force (see below). Its main goal is to facilitate the implementation of the IPCC work program, address acute issues between Panel meetings, and facilitate the coordination between the Working Groups and the Task Force. The Secretariat is located at the WMO in Geneva. It is responsible for the administration of the IPCC, coordinates the work, and organizes meetings, among others.

Products
The IPCC produces regular Assessment Reports, which present the current state of knowledge of the scientific, technical and socio-economic dimensions of climate change, as well as special and methodology reports (e.g., on practical guidelines for preparing greenhouse gas inventories under the UNFCCC).

Dialog mechanism/process for stakeholder engagement:
Member states and observing organizations are involved at multiple stages of report development. Once the Plenary has decided on the scope of a new report, the Panel is in charge of approving the outlines for the Working Groups (Working Group I: The physical science basis; Working Group II: Impacts, adaptation and vulnerability; Working Group III: Mitigation of climate change; and the Task Force on national greenhouse gas inventories; De Pryck, 2021). The member states and observing organizations then nominate experts for these groups. It is the task of the Bureau to finally select the experts to form the three Working Groups and the Task Force. The experts produce a draft report, which in this process is reviewed twice, once by other experts and once by experts and government officials. Finally, the governments of member states review and approve of the report.

United Nations Framework Convention on Climate Change (UNFCCC, all information from https://unfccc.int/)

Establishment, goals and primary role
Established in 1992, the UNFCCC secretariat (UN Climate Change) is tasked with supporting the global response to the threat of climate change.The UNFCCC has near universal membership (198 Parties) and is the parent treaty of the 2015 Paris Agreement. The main aim of the Paris Agreement is to keep the global average temperature rise this century as close as possible to 1.5 degrees Celsius above pre-industrial levels. The UNFCCC is also the parent treaty of the 1997 Kyoto Protocol. The ultimate objective of all three agreements under the UNFCCC is to stabilize greenhouse gas concentrations in the atmosphere at a level that will prevent dangerous human interference with the climate system, in a time frame which allows ecosystems to adapt naturally and which enables sustainable development.

Governance and hosting secretariat
Based on the Convention, the Kyoto Protocol, and the Paris Agreement, UNFCC bundles a wide range of institutional arrangements for the climate change intergovernmental process:

A supreme governing body: the Conference of the Parties (COP) for the Convention, the CMP for the Kyoto Protocol and the CMA for the Paris Agreement; a process management body: the Bureau of the COP, the CMP and the CMA; two permanent subsidiary bodies – the Subsidiary Body for Scientific and Technological Advice (SBSTA) and the Subsidiary Body for Implementation (SBI) – as well as other ad hoc subsidiary bodies established by the COP, the CMP, or the CMA as deemed necessary to address specific issues; and technical subsidiary bodies with limited membership (referred to in practice as the constituted bodies) established under the Convention, the Kyoto Protocol and the Paris Agreement. Moreover, it includes a secretariat and several entities entrusted with the operations of the Financial Mechanism (i.e., the Global Environment Facility (GEF) and the Green Climate Fund (GCF)).

Products
UNFCC provides a large documentation of decisions and processes related to the various different political and technical tracks of climate policies. Besides its reports related to the COP, key products/databases are the Adaptation Communications and the National Adaptation Plans, the Nationally Determined Contributions, and the Reducing Emissions from Deforestation and forest Degradation (REDD+) submissions.

Dialog mechanism/process for stakeholder engagement:
UNFCC includes several institutions linking scientists (or other stakeholders involved in knowledge creation) and policymakers:

The SBSTA is one of two permanent subsidiary bodies to the Convention established by the COP/CMP. It supports the work of the COP, the CMP and the CMA through the provision of timely information and advice on scientific and technological matters as they relate to the Convention, its Kyoto Protocol, and the Paris Agreement. In addition, the SBSTA plays an important role as the link between the scientific information provided by expert sources (such as the IPCC), and the policy-oriented needs of the COP. It works closely with the IPCC and also collaborates with other relevant international organizations.

Other institutions that are at the interface of policy and science/ knowledge include, for instance, the Least Developed Countries Expert Group (LEG) supporting the preparation and implementation strategies of national adaptation programs of action, and the Facilitative Working Group (FWG) of the Local Communities and Indigenous Peoples Platform

Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES, all information from https://ipbes.net/)

Establishment, goals and primary role

The IPBES was established in 2012 by 94 governments with the purpose to "strengthen the science-policy interface for biodiversity and ecosystem services for the conservation and sustainable use of biodiversity, long-term human well-being and sustainable development". Its aim is to provide policy-relevant information, but not prescriptive advice.

Governance and hosting secretariat

IPBES´s main body is the decision-making Plenary of all member states (over 130 today), which is supported by a Multidisciplinary Expert Panel (MEP) providing advice on scientific and technical issues and consisting of experts representing all five UN regions as well as a Bureau serving administrative functions (also representing the five UN regions; Wiegleb & Bruns, 2022). Its secretariat resides in Germany under the auspices of UNEP.

Products

In 2019, IPBES produced the first *Global Assessment Report on Biodiversity and Ecosystem Services*, summarizing the state of knowledge on biodiversity and ecosystem services at a global scale. IPBES further publishes regional reports on biodiversity and ecosystem services and thematic reports (e.g., the *Assessment Report on Land Degradation and Restoration*).

Dialog mechanism/process for stakeholder engagement

The decision to produce a global assessment or other report is taken by the Plenary. In order to identify the theme of that report, the member states put forward requests leading to a scoping report. The outline of the scoping report is then developed by a team led by the MEP and the Bureau. Once the Plenary has approved the scoping report, the member states and observing organizations nominate experts (including non-academic actors), who are then selected by the MEP. The experts then produce drafts based on literature reviews, not on own research, which are reviewed twice by external experts and government officials. Finally, the drafts are negotiated line by line and adopted by the Plenary (Wiegleb & Bruns, 2022).

United Nations Environment Programme (UNEP, all information from https://www.unep.org/)

Establishment, goals and primary role

The UNEP was established in 1972 to strengthen the coherent implementation of the environmental dimension of sustainable development within the UN system. It supports member states to ensure that environmental sustainability is reflected in development and investment planning and provides countries with the necessary tools and technologies to protect and restore the environment. Current thematic priorities are climate change, nature loss and pollution.

Governance and hosting secretariat

The United Nations Environment Assembly (UNEA) is the main governing body and priority-setting mechanism of UNEP. Created in 2012 and currently including 193 member states, it is the world's highest-level decision-making body on the environment, setting priorities for global environmental policies and international environmental law.

UNEP itself is headquartered in Nairobi, Kenya, and works through its divisions as well as regional, liaison and out-posted offices and a network of collaborating centers of excellence. A senior management team chaired by UNEP's Executive Director coordinates the work of eight divisions. UNEP also serves as the secretariat of multilateral agreements and research bodies.

Products
UNEP provides multiple products at the science-policy interface including flagship reports such as the *Global Environmental Outlook* (GEO), real-time data tools and platforms in its World Environment Situation Room (WESR), toolkits, manuals and guides, and scientific assessment reports at global, national and local levels.

Dialog mechanism/process for stakeholder engagement
UNEP's work includes several science and policy interfaces: its science and its communication divisions, its collaboration with the policymakers of member states and their various representatives, the collaboration with the Environment Assembly, and with its High-Level Group. The scientific assessment of the GEO is guided by a Scientific Advisory Panel (SAP) selected through the nomination and engagement process and comprising three experts from each UNEP region and up to six global experts. The SAP is supported by the UNEP Chief Scientist's Office.

UNEP's science division, which is also responsible for UN-wide monitoring and reporting on the environmental dimension of the 2030 Agenda and the SDGs, provides scientific assessments for decision-making. These and other inputs are communicated via UNEP's communication division, which addresses governments and citizens, stakeholders and partners, including the media.

Moreover, UNEP'S elaboration of its Mid-Term-Strategy and its Programme of Work also includes a dialog mechanism for consultation with external stakeholders including member states, young people faith-based organizations, and the private sector.

UNEP has also supported the creation of other science-policy platforms such as the (IPCC), the International Resource Panel (IRP), the IPBES, the Climate and Clean Air Coalition (CCAC), the Green Growth Knowledge Platform (GGKP), and the World Environment Situation Room (WESR).

United Nations Office for Disaster Risk Reduction (UNDRR, all information from https://www.undrr.org/)

Establishment, goals and primary role

UNDRR was created in 1999 to ensure the implementation of the International Strategy for Disaster Reduction. Today, it oversees the implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030, supporting countries in their implementation, monitoring and sharing of what works in reducing existing risk and preventing the creation of new risk. It also coordinates action within the UN system around disaster risk reduction and publishes the UN flagship report on the matter.

Governance and hosting secretariat
UNDRR's headquarters are in Geneva, Switzerland, and complemented by five regional and five subregional liaison offices. The Special Representative of the Secretary General for Disaster Risk Reduction and the UNDRR-director head UNDRR's front office, supported by a team and two coordination units (one for the Global Platform and one for policy). The Risk Monitoring, Knowledge Development and Capacity Development branch, and the Branch for Intergovernmental Processes, Interagency Cooperation and Partnerships support the Front Office.

Products
Besides its biannual flagship report, *UN Global Assessment Report on Disaster Risk Reduction (GAR),* UNDRR publishes recommendations in its "Words into Action series" and other reports. It also supports knowledge exchange via the website "PreventionWeb" (https://www.preventionweb.net)

Dialog mechanism/process for stakeholder engagement
UNDRR implements science-policy dialog at several levels: first, in its overall collaboration with other UN entities as well as with representatives of member states and a broad range of partners and stakeholders (the private sector, civil society, and community-based organizations, the science and technology community, parliamentarians, children and youth, local authorities, media), and via Capacity Building through UNDRR's Global Education and Training Institute (GETI). Second, the Stakeholder Engagement Mechanism (SEM) more formally links UNDRR to a variety of actors to share knowledge at multiple levels, to support cross-sectoral and transdisciplinary collaboration with stakeholders and Civil Society Organization (CSO) groups engaged in the 2030 Agenda processes and to strengthening citizen-led and social accountability mechanisms. The SEM, governed by an Advisory Group, aims at facilitating an all-of-society engagement in the implementation of UNDRR's mission at different levels. In its work on influencing policy, coordination for the global and regional platforms, and knowledge management, the SEM also facilitates the bottom-up communication of case studies, lessons learned, and expertise from the ground to the global and regional policy processes.

World Meteorological Organization (WMO, all information from https://public.wmo.int/en)
Establishment, goals and primary role
Created in 1950, the WMO is a designated UN agency with the purpose of facilitating international cooperation in meteorology, including weather forecasting and climate monitoring, for the safety and wellbeing of people and the environment. The purpose of the WMO is to promote and preserve the meteorological and hydrological systems and services necessary for environmental protection and preservation. The organization aims at standardizing meteorological observations and measurements, promoting scientific research and providing access to exchange of meteorological and hydrological data and information.

Governance and hosting secretariat
Consisting of 191 member states and territories, the WMO is governed by its member states represented by the Congress, which meets normally every four years. The daily activities of the WMO are managed by its secretariat based in Geneva, Switzerland. The secretariat is responsible for implementing the decisions and policies of the Congress and for providing services to the member states and other partners. The WMO Secretariat is headed by the Secretary-General, who is appointed by the WMO Congress.

Products
Products include Global Meteorological Data, Weather and Climate Forecasts, Guidelines and Standards, Scientific Research, Training and Capacity Building, dissemination of information. WMO's flagship reports are the *Provisional State of the Global Climate in 2022* and the *State of Global Water Resources 2021.*

Dialog mechanism/process for stakeholder engagement
Several mechanisms and processes are set in place to facilitate dialog and cooperation between the WMO and its member states and to promote the exchange of information and expertise:

The World Meteorological Congress is the supreme body consisting of delegations from all member states. The Congress sets policies and strategies of the WMO, elects the Secretary-General, and adopts the budget and programs of the organization. WMO has six Regional Associations, bringing together the member states of particular regions for discussions and coordination. Several Technical Commissions provide guidance and advice on specific areas of expertise (e.g., meteorological observation, weather prediction, atmospheric research, and climatology). The Executive Council is the interim governing body of the WMO and is accountable for the implementation of the decisions and policies of the congress and for supervising the activities of the Secretariat. Organization and participation in Scientific Conferences and Workshops are its main means for platforming exchange of information and ideas on meteorological and hydrological topics. The WMO convenes Expert Teams to address specific technical and issues to provide recommendations to the member states.

World Health Organization (WHO, all information from https://www.who.int/)

Establishment, goals and primary role
The WHO is a specialized UN agency with a mandate to promote health, provide technical assistance, and coordinate international health activities. WHO is at the forefront of global health matters, shaping the health research agenda, setting norms and standards, articulating evidence-based policy options, providing technical support to countries, and monitoring and assessing health trends.

Governance and hosting secretariat
The governance of the WHO is based on the World Health Assembly, the decision-making body of the WHO, composed of all 194 member states. The Assembly meets annually to set policies, approve budgets, and review progress in health. The Director-General is appointed by member states and serves as the Chief Executive of the WHO.

The Secretariat of WHO is responsible for implementing decisions and policies of the WHA and for carrying out the day-to-day organizational work. The secretariat is headed by the Director-General and consists of various technical and administrative departments. It is headquartered in Geneva, Switzerland and has regional presence in different parts of the world.

Products
Some of the main research and publications produced by WHO include their flagship report *World Health Report*, and platforms for statistics and data such as the *World Health Statistics* and the *Global Health Observatory* data.

Dialog mechanism/process for stakeholder engagement
The WHO uses a multi-stakeholder dialog mechanism to engage with its network of various partners, stakeholders, governments, international organizations, civil society, academic institutions and the private sector. This allows the WHO to gather inputs and perspectives from a wide range and thus enhance collaboration and coordination in global health initiatives. Some examples of its dialog mechanisms include: the World Health Assembly, the Executive Board, the Regional Committees, the Technical and Programme Coordination Committees, the Collaborating Centres, and Partnerships and Consultations with member states.

World Water Assessment Programme (WWAP, all information from https://en.unesco.org/wwap)
Establishment/goals and primary role
The WWAP was established by UNESCO in 2000 following a request by the Commission on Sustainable Development (CSD) with the aim "to meet the growing requirements of UN Member States and the international community for a wider range of policy-relevant, timely and reliable information in various fields of water resources developments and management". Its main task is to coordinate the production and promotion of the *World Water Development Reports* (WWDR).

Governance and hosting secretariat

Since 2007, the WWAP has been hosted at the UNESCO Programme Office for Global Water Assessment in Perugia, Italy.

Products
The WWAP's main publication is the United Nations *World Water Development Report* (WWDR). From 2003 to 2012, the WWDP was published triennially, providing a comprehensive review of the world's freshwater resources regarding their quality, quantity and use, as well as sanitation. Since 2014, the WWDR has been published annually, each report featuring a certain topic (e.g., 2022 on groundwater), which is aligned with the annual theme of UN-Water. The WWAP further publishes other special reports such as the *SDG 6 Synthesis Report on Water and Sanitation* (2018).

Dialog mechanism/process for stakeholder engagement
The WWAP works at the science-policy interface through coordinating the 35 agencies of the United Nations and their partners making up UN-Water, in the process of publishing the WWDR. The final report is then cleared by UN-Water. Further science-policy interventions include capacity-building measures for policymakers (e.g., in the field of water and gender or gender disaggregated data). Stakeholders were engaged in identifying the topics for the WWDR 6 and 7 via a global stakeholder survey.

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