POLICY BRIEF

Water, Peace and Security

Entry-points for Collaborative Water Governance in Southern Iraq

Executive Summary

Addressing water-related tensions in southern Iraq can be a significant challenge, especially when it comes to addressing long-term systemic issues. However, critical improvements in water management can be made incrementally, without needing to influence external water-related factors or immediately engage in large-scale long-term structural changes. In support of designing realistic and achievable first steps, this policy brief – based on 13 interviews with water experts in southern Iraq, 3 focus groups, and 3 working groups – outlines a set of entry-points for the development of long-term solutions.

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1. Improve institutional coordination

1.1 Institutionalise vertical communication by creating a **network of linked governorate-level centres,** one per governorate, linked to an **analogous federal coordination centre,** including all relevant entities operating in each governorate (e.g. local directorates of relevant ministries, Governorate Councils, etc.) to allow them to contribute to, and be informed of, decisions affecting their governorate.

1.2 Accelerate the establishment of the National Water Council to act as a **centralised cross-sectoral water coordination centre,** where civil servants could be encouraged to take an integrated approach to water management by coordinating their aims and decisions across ministries.

1.3 Establishment a formal **horizontal communication platform** between governorates, to foster a sense of collaboration instead of competition, allow the dissemination of results of new policies in their governorate, and share advice for resolving shared challenges.

2. Engage with local communities

2.1 Set up an **information channel** for local communities to provide guidance and support on water-related best practices, in order to ensure their cooperation in water conservation efforts.

2.2 Establish a **dedicated platform** for authorities and community to provide information on the state of water resources in a specific location, as well as provide an avenue for local communities to flag the challenges they are facing to authorities.

3. Improve access to information

3.1 Establish a **centralised data dissemination platform** to unify the data gathered by different ministries institutions in one accessible system, including river and lake levels, and reports on the state of infrastructure. Presenting all the relevant information in one place would help use the data that already exists to its fullest potential

3.2 Set up an **up-to-date, open-access water data portal** to allow Iraqi authorities to leverage research conducted in academia and the private sector to improve both national and provincial water management.

الملخص التنفيذي

يمكن أن يشكل معالجة التوترات المتعلقة بالمياه في جنوب العراق تحديًا كبيرًا، خاصة عندما يتعلق الأمر بمعالجة القضايا المنهجية طويلة الأجل. ومع ذلك، يمكن تحقيق تحسينات حاسمة في إدارة المياه تدريجيًا، دون الحاجة إلى التأثير على العوامل الخارجية المتعلقة بالمياه أو الانخراط فورًا في تغييرات هيكلية واسعة النطاق وطويلة المدى. دعماً لتصميم خطوات أولية واقعية وقابلة للتحقيق، يقدم موجز السياسة هذا - استنادًا إلى 31 مقابلة مع خبراء المياه في جنوب العراق، و3 مجموعات تركيز، و3 مجموعات عمل – تحدد مجموعة من نقاط الدخول لتطوير حلول طويلة الأجل.

١. تحسين التنسيق المؤسسي

١.١ إضفاء الطابع المؤسسي على التواصل العمودي من خلال إنشاء شبكة من المراكز على مستوى المحافظات، مركز واحد لكل محافظة، مرتبط بمركز تنسيق اتحادي مماثل، يشمل جميع الجهات المعنية العاملة في كل محافظة) مثل المديريات المحلية للوزارات ذات الصلة، مجالس المحافظات، إلخ (لكي يكونوا على اطلاع و للسماح لهم بالمساهمة في القرارات التي تؤثر على محافظتهم.

٢.١ تسريع إنشاء المجلس الوطني للمياه ليعمل كمركز تنسيق مركزي بين القطاعات المختلفة، حيث يمكن تشجيع الموظفين المدنيين على اعتماد نهج متكامل لإدارة المياه من خلال تنسيق أهدافهم وقراراتهم عبر الوزارات.

٣.١ إنشاء منصة رسمية للتواصل الأفقي بين المحافظات لتعزيز شعور التعاون بدلاً من التنافس، والسماح بنشر نتائج السياسات الجديدة في محافظاتهم، ومشاركة النصائح لحل التحديات المشتركة.

٢. الانخراط مع المجتمعات المحلية

١.٢ إنشاء قناة معلومات للمجتمعات المحلية لتقديم الإرشادات والدعم حول أفضل الممارسات المتعلقة بالمياه، لضمان تعاونهم في جهود الحفاظ على المياه.

٢.٢ إنشاء منصة مخصصة للسلطات والمجتمع لتوفير المعلومات حول حالة الموارد المائية في موقع معين، وكذلك توفير وسيلة للمجتمعات المحلية لإبراز التحديات التي تواجهها للسلطات.

٣. تحسين الوصول إلى المعلومات

١.٣ إنشاء منصة مركزية لنشر البيانات لتوحيد البيانات التي تجمعها مختلف المؤسسات الوزارية في نظام واحد يمكن الوصول إليه، بما في ذلك مستويات الأنهار والبحيرات، وتقارير حول حالة البنية التحتية. يمكن أن يساعد جمع المعلومات ذات الصلة في مكان واحد في استخدام البيانات الموجودة بالفعل إلى أقصى حد ممكن.

٢.٣ إنشاء بوابة بيانات مائية حديثة ومفتوحة الوصول للسماح للسلطات العراقية بالاستفادة من الأبحاث التي تجري في الأوساط الأكاديمية والقطاع الخاص لتحسين إدارة المياه على المستوى الوطني والمحلي.

Entry-points for Collaborative Water Governance in Southern Iraq

Introduction

As Iraq continues to deal with a chronic water crisis, experts both inside and outside the government are mobilising to find and design durable solutions. In support of this process, this policy brief outlines three entry-points for the development of long-term solutions, derived from interviews and focus groups with stakeholders in the south of Iraq.

Iraq faces a severe shortage in quantity and quality of water: this is partly caused by external factors, such as climate change and upstream damming, but also by internal water management practices. The impacts of water scarcity hit every sector of society, and left unaddressed, they can create tensions between different governorates and different levels of government. This is especially true in the southern governorates, which are impacted by upstream water overuse and pollution. In recent years, tensions over water scarcity have flared into protests against both provincial and national authorities, as inhabitants demanded action and solutions (Koli, 2022).

Significant efforts are being made by governmental and non-governmental groups to address the causes and effects of water-related instability in Iraq, but moving towards concrete, collaborative solutions remains challenging. This complex issue requires long-term systemic policies, which can be difficult to operationalize into concrete, shorter-term steps.

To address this issue and reduce water-related security risks, this paper proposes three entry-points to start fostering collaboration at the interprovincial and national level on water management in Iraq, each of which requires collaboration between a variety of stakeholders at different levels. These entry points include:

1. Institutional coordination;
2. Improved communication between authorities and communities;
3. Data-sharing & enforcement.

These are areas that Iraqi authorities could look into when beginning to tackle water-related security challenges in Iraq; they are not an exhaustive list nor a definitive solution to the problem.

The entry-points are derived from interviews and focus groups that took place in the summer of 2024 in the south of Iraq. The WPS team held 13 semi-structured interviews with experts on water-related security in southern Iraq; they included academic experts, NGO representatives, some (current and former) federal government officials, and international agency staff working on water and climate issues in southern Iraq. The question design for the interviews was inspired by the solution areas and recommendations in the World Bank's 2021 "E.P.I.C." report on Innovative Governance for Flood and Drought (Browder et al., 2021b). Interviews were supplemented by three focus groups with inhabitants of Basra, Wasit, and Missan held in July 2024, which were aimed at mobilising different communities of the three southern governorates to explore collaborative solutions to common problems. They were also supplemented by the integration of some interview questions into the discussion groups of GIZ's 3rd Solution Lab, held in Basra on the 10th of July 2024.

Solution-focused thinking in Iraq

While analysing the causes and intricacies of water-related conflict is essential for designing effective solutions, making the progression towards a more constructive, solution-focused approach can be a challenge. This is especially true in Iraq, where access to information is limited, and both researchers and community representatives have historically felt unheard when discussing water scarcity and its ongoing or imminent impacts on Iraqi society. Stakeholders can therefore be reluctant to jump into solution design.

However, several initiatives currently present in Iraq aim to encourage solution-focused thinking, including but not limited to:

- The Water, Peace & Security partnership, in partnership with a community advocacy organisation, as part of its 5 years of work in Basra, Wasit, Missan, and Dhi Qar, has organised several focus groups and a public session on the topic. Throughout July and August 2024, these events aimed to encourage communities to identify their own potential contributions to the mitigation of water-related security issues. Moving forward, WPS is planning a Symposium and High-Level Roundtable to discuss the Commitments to Action that could be taken by each relevant stakeholder in government, academia, and civil society.
- As part of its project "Climate and Security Nexus – Improving Peace and Stability through Climate Change Adaptation and Conflict Prevention in Iraq" (ISCAP), GIZ is rolling out "Solution Labs for Climate Change and Adaptation". They aim to facilitate knowledge transfer of new ideas on climate change, with involvement from a variety of stakeholders.
- The National Policy Dialogues on Integrated Water Resources Management (*About the National Policy Dialogues*, 2024), jointly organised by the Iraqi government, the EU, and UN agencies in Iraq, serve as a platform to develop comprehensive and inclusive water policy frameworks which incorporate lessons from global best practices. They aim to ensure that water management remains a focus for Iraq in the upcoming UN 2025-2029 Sustainable Development Cooperation Framework.

1. Improve institutional vertical, cross-sectoral, and horizontal coordination to increase the effectiveness of water management

Across all response channels, the need to solve structural issues within water governance and management emerged as an absolute priority. Creating a coordinated and efficient institutional framework across all levels of government is a precondition for implementing concrete solutions, like water conservation measures and other sustainable practices. This aligns with past WPS research, in which institutional changes to empower southern governorates to actively address water-related challenges emerged as a key priority (WPS & Clingendael, 2022).

However, an important preparatory step is achieving functional and coordinated water governance between ministries and governorates. This will start addressing patterns of conflict which hinder effective water management, both when it comes to tensions between governorates and federal authorities, as well as tensions between governorates themselves. Improved institutional coordination at multiple levels (between federal and local government, between different government ministries and agencies, and between governorates) has the potential to ensure federal initiatives better address governorates' needs, that water governance is cohesive and coordinated across government entities, and enables best-practice sharing on water between governorates.

1.1 Vertical coordination

The challenge

A current obstacle to inclusive decision-making in the field of water governance is the inconsistent communication and coordination between the federal government and institutions working at the local level. This can cause frustration on the side of institutions like governorate councils, especially when it comes to water allocation decisions, and lead to conflict between national- and governorate-level authorities.

Water management in Iraq currently follows a top-down design, whereby governorates are required to seek central authorisation and funding for many locally-initiated projects, and do not always have a clear or effective avenue to offer input to, or raise issues with, federal authorities. Additionally, the inputs from the local experts and the final decisions made by the federal authorities are often significantly apart in time, which makes them less effective in addressing current needs. Despite the relatively high local motivation to act on water-related issues, these factors contribute to a culture of centralisation where local authorities tend to defer the initiation, management and implementation of water-related projects and policies to the central government.

However, centrally-decided water policies are not always tailored to meet local needs. Whether a specific governorate's needs are taken into account in policymaking depends largely on the political power, network, and access to sector-specific knowledge (e.g. through an engineering consultant) of the individual Governor, leading to unequal inclusion of different governorates' needs in governance considerations. When central decision-making is detrimental to a specific governorate, it has a negative impact on the population and creates resentment.

The opportunity

Respondents raised the need for federal and local government to come together directly around water governance more frequently, instead of the current system where mediating individuals are sent back and forth to relay complaints. Integrating regular meetings into the structure of project management (e.g. consultations during project design, joint priority setting etc) has the potential to facilitate more productive discussions about problems, bottlenecks, and solutions.

The World Bank's EPIC report on Innovative Governance for Flood and Drought highlights that local governments are the natural allies of national water management agencies, and that national agencies should "work seamlessly with sub-national and local governments to bring improved management to all regions and communities." (Browder et al., 2021a, p. 8) The role of local governments in the implementation of national water and drought management strategies includes, for example, reflecting key national priorities in land use regulations, building codes, or urban water supply decision-making, which could be significant in Iraq given decreasing water availability and ongoing drought conditions. This can only happen if local authorities are informed of, and support, national strategic decisions.

While communication between central and local government is currently done through ad-hoc field visits to governorates by ministerial staff, vertical communication could be institutionalised by creating a **network of linked governorate-level centres,** one per governorate, which would include the Governor's offices, local directorates of relevant ministries (water, environment, and others), as well as other entities operating locally, in order to ensure the full inclusion of all relevant entities. These coordination centres would be linked to an **analogous federal coordination centre,** which would ensure all organisations in a governorate would have the opportunity to contribute to, and be informed of, decisions affecting their governorate.

1.2 Cross-sectoral coordination

The challenge

As mentioned above, while local motivation to act on climate- and water-related issues is high, provincial institutions require federal support to implement projects or policies, especially when it comes to obtaining authorisation and funding. The process to obtain this is often convoluted, with motivated project proponents being bounced around multiple different ministries and directorates in order to obtain what they need, sometimes requiring the intervention on their behalf of international NGOs, and other times receiving conflicting decisions.

Indeed, one of the obstacles to timely, well-planned, and consistent water management is that the responsibility for water-related decision-making and project implementation is currently splintered between a variety of different entities, even for federal policies and projects. These include the Ministry of Water Resources, the Ministry of Housing and Municipalities (for some water-related infrastructure), the Ministry of Transport (responsible for meteorology), the Ministry of Agriculture, the Ministry of the Environment, the Prime Minister's Office advisory commissioner, the Ministry of Foreign Affairs, as well as a variety of other associated centres and directorates. The Ministry of Planning and the Ministry of Financing are also involved in approving projects as well as allocating and disbursing funds.

The opportunity

While a structural reorganisation of water-related responsibilities has already been recommended for the long-term (WPS & Clingendael, 2022), an intermediate step should be the acceleration of the establishment of the long-awaited National Water Council, delayed for over a decade now (Baghdad Today, 2024; UNDP, 2016), to act as a **centralised cross-sectoral water coordination centre** where civil servants could be encouraged to take an integrated approach to water management by coordinating their aims and decisions across ministries.

In the context of water management, collaboration is essential to mitigate unintended consequences, i.e. ensure that measures taken to reduce the risk of one water-related challenge do not increase the risk of a different hydrological or socio-political hazard. For example, building dams can reduce flood risk, but it can also damage agricultural land and impact food security or internal migration. This exercise is also helpful to reduce confusion within government about the intended impact of an intervention, and could also reduce the time taken to reach water-related decisions, if all relevant parties are present when an issue is raised. Indeed, a "joined-up government effort", with collaboration between multiple agencies, as a prerequisite for the effective management of water-related risks (Browder et al., 2021b, p. 28). Cross-sectoral coordination is therefore essential to the holistic management of risk.

1.3 Horizontal coordination between governorates

The challenge

Currently, communication between governorates occurs on an ad-hoc basis, based on the personal connections between Governors or staff working in Governorate Councils. While this can yield results on occasion, the frequency of communication is extremely variable, and information-sharing as a practice is not institutionalised nor used to its fullest potential. This is particularly relevant for the governorates that share the Shatt al-Gharraf[1] (Al-Kubaisi, 2024). Tensions between these governorates – Wasit, Basra, Dhi Qar and Missan – typically take the form of accusations of overuse of allocated water shares, but there have been instances of escalations into lawsuits (e.g. Missan vs. Wasit and Dhi Qar, 2017) and demands to involve security forces (WPS, 2021, p. 4). A missed opportunity in water governance is the ability of governorates to communicate more regularly with each other, both to exchange on best practices as well as for dispute resolution.

[1] The Shatt al-Gharraf an ancient canal that connects the Tigris at Kut al-Amara with the Euphrates east of Nasiriyah.

The opportunity

Having more insight into other governorates' challenges and policy priorities, as well as access to a regularly-used communication channel, may also help with dispute resolution between governorates, especially conflict stemming from the overuse of water (relative to their quota) by upstream governorates. Indeed, collaboration even among local entities is important to ensure that the decisions to mitigate water-related risks in one governorate do not increase the risks in another (downstream) governorate.

Governorates would benefit from the establishment of a formal **horizontal communication platform**. More regular contact could allow staff to build relationships and foster a sense of collaboration instead of competition; from a practical perspective, the platform would allow the dissemination of results of new policies in their governorate, or share advice for resolving shared challenges. Unlike larger national and international forums, which may address more high-profile issues but result in unrealistic commitments, cooperation between local authorities has the potential to leverage more feasible and practical impacts despite a slower organising process.

The obvious opportunity for increased dialogue and cooperation between governorates concerns coordinated management of shared rivers between upstream and downstream governorates. This touches on long-running problems, such as the (non) respect of water allocations. However, it also includes less contentious improvements, such as ensuring that governorates are aligned on what chemicals are introduced into shared waters and how they can be removed. This was one of the multitude of factors that experts indicated as potential contributors to the large-scale water-borne disease outbreak in Basra in 2018 (Human Rights Watch, 2019, pp. 25–33). In this case, evidence indicated that upstream over-fertilization and improper irrigation techniques – reportedly linked to illegal farms, that upstream governorates were allegedly tolerating – led to fertiliser runoff into rivers, which caused hazardous algal blooms. Downstream governorates did not have access to the technology or sufficient chlorine to effectively treat the water and prevent the blooms, ultimately contributing to devastating health impacts. In the future, coordination and cooperation when it comes to co-management of agriculture and shared water could be first steps in preventing these disasters.

When it comes to best-practice-sharing, an example of a potential improvement highlighted by our interviewees was an episode where water-borne disease outbreaks were identified in multiple governorates in early 2024. Babil Governorate managed the outbreak successfully, and wanted to propose the strategy to other governorates. Employees at the Babil directorate of the Minister of Municipalities eventually managed to reach staff at the water directorates in other governorates through a chain of personal connections and phone calls, but lacked a platform or official avenue to communicate with other governorates and exchange best practices. Facilitating communication between governorates through the horizontal coordination platform (which could take the form of regular meetings) can facilitate and encourage best-practice-sharing, making it easier and faster for governorates to progress together.

2. Improve communication with local communities to better understand and support their needs

In Iraq, water-related collaboration has the potential to cut across ethnic and political divides by appealing to common and shared Mesopotamian culture, and therefore has a key role to play in building and maintaining a positive relationship between governing authorities and Iraqi residents. Currently, Iraqi authorities often stress their need for local communities to adhere to water-saving measures

and sustainable practices, while communities emphasise their need for greater government support in accessing clean water, especially in the event of a crisis. Both of these point to the need to enhance two-way communication.

In general, community participation in water governance is important both for the effective implementation of Integrated Water Resources Management, but also for the prevention and mitigation of water-related conflict and instability. Involving local communities is important for project quality and success: their involvement ensures that policies and projects are adapted to their needs and potential contributions, and when local communities invest time and resources in the co-creation of a project, it can facilitate their acceptance of the project and any required behavioural change (United Nations Educational, Scientific and Cultural Organization, 2023, p. 173). After completion, communities are also well-placed to monitor, evaluate, and improve the performance of projects that affect them (Browder et al., 2021b, p. 44). From the point of view of conflict prevention and mitigation, inclusive governance can help ensure that new initiatives do not inadvertently worsen existing tensions or resentment.

While community participation in water governance is recommended as a long-term end goal for Iraq, an intermediate step is improving communication between authorities and communities in order to maximise cooperation.

2.1 Information channel

The challenge

The obstacles to better two-way communication are twofold. Firstly, the current governmental approach to water-related projects is very technical, with projects being designed and implemented mostly by engineers in the federal government with limited consideration of inclusive water governance principles. The current process misses the opportunity to involve communities that may be affected by these projects, meaning that communities have no visibility on the logic behind certain decisions, and do not have the opportunity to flag potential negative side-effects. It can result in communities being uncooperative, for instance certain members not respecting their allocated times in the Marashna (المراشنة) system,[2] or choosing not to use water conservation measures.

The opportunity

In order to ensure cooperation in water conservation efforts, some communities would benefit from further guidance and support, such as an **information channel and/or financial support**. This could include information on the reasoning behind water rationing or rotation systems implemented in the local area, as well as on topics like sustainable farming practices (how to implement them, what the effects could be on crop production, etc). For instance, respondents highlighted that the requirements and consequences of more water-efficient irrigation methods need to be explained to potential users, until there is enough take-up that the benefits become well-known and obvious. Some of our respondents highlighted that authorities rarely visit remote areas to monitor the implementation of water allocation laws and recommended practices, advocating for more proactive visits in which authorities would gain a full picture of water-related challenges on the ground and a better understanding of where additional support is needed.

Local communities tend to show high motivation to adapt their behaviour when there is adequate information made available and communicated on the topics, and many rural inhabitants would welcome more interaction and collaboration with governmental authorities.

[2] The marashna/marashanah system is a rotation-based arrangement whereby some water users are allocated access to public water on specific hours or days. For example, the pumping station in Basra governorate that supplies the cities of Khor Al-Zubair, Safwan, and Umm Qasr alternates daily between each city, with each city receiving water every three days (Abdulaziz Alqatrani & Amin Hamzah, 2021). The same system is often used on an hourly basis between neighbouring farmers across Iraq, where each farmer receives water at a specific time slot.

2.2 Water user platform

The challenge

The second obstacle is that communication between the government and local communities, including farmers, is often reliant on ad-hoc field visits. The frequency of these visits depends in part on the personal willingness of the coordinator on the government side to travel, especially for visits to the Iraqi Marshes, and varies greatly depending on who is in office. This means that some rural communities do not have a reliable and regular way of communicating the water-related challenges they are facing or to access support from authorities. Often, this support only comes when a challenge escalates to crisis levels and is picked up by the media.

The opportunity

These issues point to the need for a **dedicated platform** (which could be digital, but could also come in the form of periodic meetings between authorities and community leaders where a digital approach is not feasible) which could provide information on the state of water resources in a specific location, as well as provide an avenue for local communities to flag the challenges they are facing to authorities. The natural extension of this initiative would eventually be the full digitalisation of water services, potentially supported by the involvement of private companies. It is important to note that this information exchange must be meaningful, as gathering information about crises faced by communities only builds trust if it is then acted upon and the problems addressed.

Improving two-way communication between communities and authorities can help ensure that both are aligned in addressing water-related challenges and mitigating water scarcity, and that local communities' water-related needs are addressed in a timely manner.

3. Centralise data to improve law enforcement and independent research

All respondents, from a variety of governmental, research, and advocacy organisations, highlighted the importance of gathering and accessing accurate information about the state of water resources in Iraq.

There is a global push for open access to information, especially information that governments produce, collect, or pay for. In water management, examples of relevant information include pollution measurements, river flow information, water consumption statistics, and reports on the state of the hydrological system, including infrastructure (Browder et al., 2021b, p. 44). Access to this information provides a clear understanding of the state of the water system, and helps relevant government institutions collaborate and perform their tasks. It also unlocks the possibility of a "whole-of-society" approach to tackling water-related risks, involving not just government, but also politicians, businesses, scientists, and young people (United Nations Resident Coordinator Office (Thailand) & Embassy of the Kingdom of the Netherlands in Thailand, 2023). Understanding the state of the water system is important both for scientific research, and to allow citizens to fully engage in the governance of their country (Browder et al., 2021b, p. 44).

3.1 Centralised data management

The challenge

In Iraq, the task of gathering different types of water-related data is currently scattered across the myriad of ministries and institutions discussed in section 1.2 above. Some of our respondents reported difficulties in locating data they needed, despite knowing that it had been gathered, or being aware of miscommunications within governing authorities linked to incomplete access to data. This lack of centralised and comprehensive information creates difficulties at each stage of designing solutions, from impeding the assessment of the

hydrological situation in Iraq, to hindering the monitoring and enforcement of laws and regulations once they are decided. Other respondents, especially those working in the southern marshes, highlighted that data-gathering efforts also often do not reach their communities. For example, there have been instances of incorrect/illegal river diversions not being detected by regulatory authorities because of a lack of comprehensive data on surface water flows.

The opportunity

Accurate data is also an opportunity to spark informed and apolitical discussions among governmental decisionmakers. It can highlight the importance of internal water management decisions, thereby focusing away from exogenous factors and underlining what *is* indeed under the control of policymakers. For example, international agencies working with Iraqi authorities have held productive working sessions on analysing current and future water use scenarios, using data as a starting point (e.g. linking the relationship of water use to GDP output of various sectors of the economy to identify where it would make most sense to reduce water use). More comprehensive and accurate data specifically relating to the state of water resources can help inform better decision-making.

While unifying data-gathering across all of its stages (observations and monitoring, processing, dissemination, and archiving) may be an ambitious task, a shorter-term initiative could already be a **centralised data dissemination platform**, that brings together the data gathered by different institutions in one accessible system. Initially, this could take the shape of a data platform just for the southern governorates, including river and lake levels, and reports on the state of infrastructure. Presenting all the relevant information in one place would help make the best use of the data that already exists, but is not used to its fullest potential. For data-scarce regions, this platform could also integrate remotely-sensed Global Satellite Data.

3.2 Data accessibility

Once water-related data is collected and centralised, it should also be accessible to those who can participate in finding solutions to Iraq's water challenges. Much of Iraq's existing water-related data (including the Strategy for Water and Land Resources in Iraq) is currently confidential or not fully accessible to those outside of government, making it difficult for independent researchers or private companies to help assess water-related problems or conduct research into potential new initiatives or technologies. This also puts Iraqi researchers and companies at a competitive disadvantage vis-à-vis (for example) Iranian or Turkish ones, who operate in an environment where hydrological data is much more accessible.

It is also worth noting that with the advancement of remotely-sensed data (for example, through satellites that can measure river flow from a distance), data is becoming increasingly accessible to the public. It would therefore make sense for Iraqi authorities to make government-gathered data accessible to its citizens, in order to give Iraqi researchers a complete picture of the state of the Iraqi water system, and give them the chance to start working and innovating without unnecessary delays.

An **up-to-date, open-access water data portal** would allow Iraqi authorities to leverage research conducted in academia and the private sector to improve both national and provincial water management. This could be the natural extension of the centralisation platform mentioned in 3.1 above.

Conclusion

Addressing water-related tensions can appear like an overwhelmingly large task. However, critical improvements in water management can be made incrementally, without needing to influence external water-related factors and immediately engage in large-scale long-term structural changes. Water management can be significantly improved with coherent, inclusive, and transparent policies, and improving coordination between governing agencies and councils, communication and engagement with local communities, and allowing freer access to information are important first steps. All of them are realistically achievable and have the potential to lead to more productive and inclusive discussions around the use of water in Iraq.

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Water, Peace and Security (WPS) Partnership

The Water, Peace and Security (WPS) partnership helps stakeholders to identify and understand water-related security risks and undertake timely, informed and inclusive action for conflict prevention and mitigation. The WPS Partnership is funded by The Netherlands Ministry of Foreign Affairs. The views and opinions expressed in this report do not necessarily reflect the opinions or policies of our donor.