



From data to decisions

Developing user-centred
monitoring programmes
for water, sanitation
and hygiene

Policy brief, June 2020

Key messages

- To drive progress in the wider water, sanitation and hygiene (WASH) system, sector monitoring programmes must go beyond the production of data and strengthen all of the institutions, processes and incentives required to enhance the use of data for decision making.
- To develop user-centred monitoring systems that drive transformational change through data-informed planning, budgeting and service delivery, governments and development partners must:
 - ● Build a better understanding of data use, drawing on insights from political economy and behavioural science.
 - ● Take a long-term approach to strengthen both data production and data use, with strong government leadership.
 - ● Ensure monitoring systems are co-designed with the end users of data, including local and national officials.
 - ● Develop processes within the monitoring system to incentivise data use and mitigate potential biases.
- This brief is accompanied by the *Data use planning guide* to support governments and partners to put this approach into practice.

WaterAid/Basile Ouedraogo



To move from better data to better decisions, strengthen the whole sector monitoring 'sub-system'

This Policy brief draws on insights from political economy and behavioural science to outline how governments and development partners can **strengthen the use of data** to achieve universal access to WASH services.

There is growing recognition that universal and sustainable WASH services will only be realised through a **system-wide approach**.¹ Sector monitoring is seen as a vital component of the WASH system, recognising that accurate information and effective decision making are the lifeblood of a well-functioning sector.

However, even where sector monitoring systems exist, the **data is not necessarily being used for decision making** or improving sector performance.

In order to realise the transformational change promised by sector monitoring programmes, governments and development partners need to strengthen the whole **sector monitoring sub-system**. That is, all of the behaviours, policies, processes, resources, interactions and institutions necessary for effective sector monitoring.

While there are many components of a monitoring sub-system, simplifying to a dual system of **data production** and **data use** helps to conceptualise interactions with the wider WASH system, including planning, budgeting and service delivery.

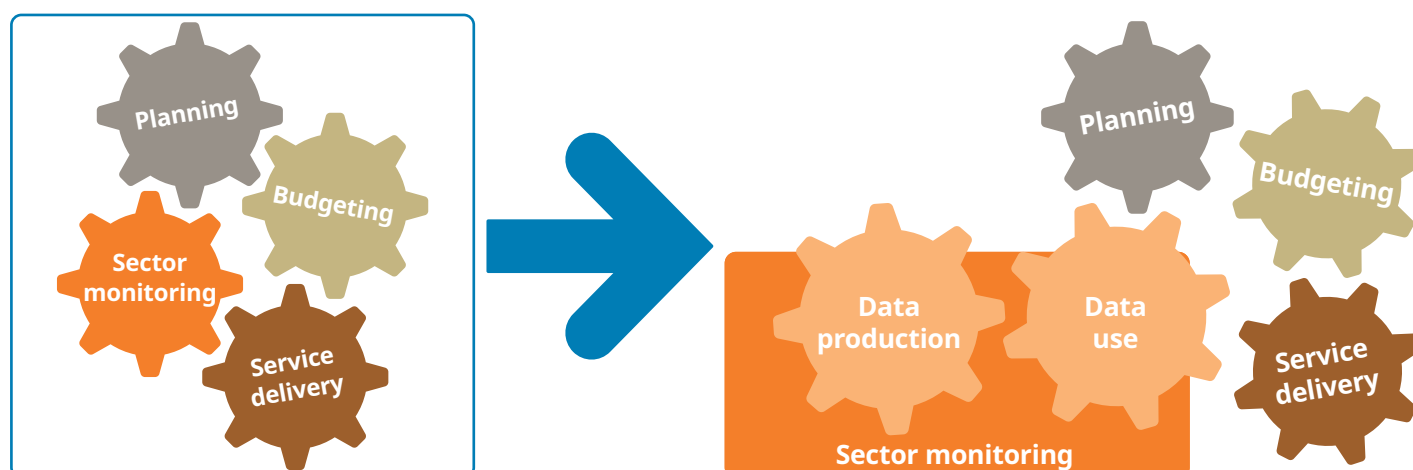
Data production can include the development of indicator frameworks, data collection, data analysis and data management. These issues have long been the focus of sector monitoring programmes. **Data use** refers to the institutional arrangements, processes and incentives within the monitoring sub-system that facilitate the use of data.

Data use provides **linkages to the broader WASH system** and can drive progress in areas such as planning, budgeting and service delivery. Yet while there are some positive examples of WASH programmes promoting data use,² around one third of the countries responding to UN-Water's 2017 GLAAS survey reported that data was either **unavailable or not fully used** for decision making.³

This problem is not unique to WASH. An evaluation of World Bank support to statistical capacity across all sectors concluded that while the production of data in partner countries had been enhanced, there had been less impact on data use.⁴

Building on recommendations from that evaluation, this brief sets out how WASH sector monitoring programmes can create a more '**user-centred data culture**' and stimulate greater use of data in WASH decision making processes.

▼ Selected sector building blocks and their interactions with the sector monitoring sub-system.



WASH sector monitoring is not only a technical issue of data production

As a starting point, it is useful to outline the different purposes for which WASH-related data is required. Depending on the purpose – or the specific decisions that need to be informed – the data needs differ. The following table is compiled from a background paper from the 2013 *Monitoring Sustainable WASH Service Delivery Symposium*, to show common instrumental uses of data in the WASH sector, and the types of data that are needed for these purposes.⁵



Purpose

Data needs

Managing implementation and expenditure at the project or programme level

Data on inputs (budgets, financial flows) and outputs (service provided, numbers served) via project cycle monitoring.

Managing assets

Inventory data concerning status of existing as well as new assets.

Managing services and ensuring accountability

Data on service levels experienced via citizen reporting, regulatory monitoring or service provider monitoring.

Evaluating sustainability or wider impacts

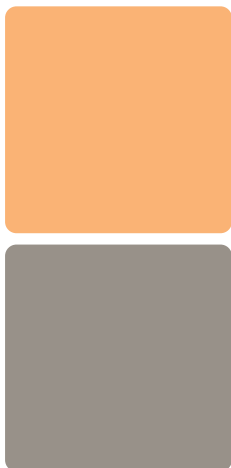
Data on the sustainability of services or impacts on health, wellbeing or livelihoods (wider impacts are rarely, if ever, monitored routinely).

Tracking or enhancing institutional capacity

Data on the 'enabling environment', via sector review processes or analyses.

Formulating policies, plans and/or budgets

A range of data types outlined above are required for targeting, budget allocation, selection of delivery models, etc.



This table highlights not only the diversity of information needs, but also that **WASH decisions are made at multiple levels of government** – national, sub-national and local. Decisions are made by elected politicians, civil servants, and government officials. The mandates of these different actors range from political to strategic to operational. Operational decisions can be especially important to consider where local governments act as service providers.

The wide variety of purposes and data needs demonstrates that there cannot be a 'one-size-fits-all' approach to data use. Yet a review of the existing literature on WASH monitoring shows that little consideration has been given to the distinctions that exist between different purposes or data needs. Instead, the literature is predominantly focused on **technical issues** related to data production.^{6,7,8,9,10} For example:

- Robustness – the scientific defensibility of methods.
- Scale – ensuring monitoring is disaggregated to the geographic or population level of concern.
- Timeliness – ensuring users can access up-to-date monitoring data at the point they need to make decisions.
- Communication – processing monitoring data into a readily intelligible form.
- Participation – both to ensure different perspectives are incorporated into indicator selection and to engage potential end users.

While these issues are primarily related to data production, the **interdependent** nature of the sector monitoring sub-system means that such technical issues are also important while

considering data use. For example, 'timeliness' can be viewed from the perspective of data production (in terms of data collection logistics or ICT options for real-time visualisation), but also from the perspective of data use (in terms of alignment with budget or planning cycles).

Understanding how the technical characteristics of data production influence the use of data is therefore important – and where issues of data use are considered, it is often from this perspective.¹¹ However, a more complete understanding of data use requires a robust analysis of **institutions, processes and incentives**.

The need to strengthen institutions, processes and incentives has been highlighted by previous research into WASH monitoring.¹² However, such research doesn't say how this can be achieved in practice. To answer this question, ideas from outside the traditional WASH literature can be helpful. The following sections outline key insights on data use from studies of **political economy and behavioural science**. These insights are then combined with the 'technical' considerations above to create a holistic 'data use framework' to support an understanding of the use of data in WASH decision making.

This framework can support governments and development partners to ensure that sector monitoring programmes **engage with the realities of data use** and are able to effectively drive progress in wider elements of the WASH system.

Insights from political economy: the context in which decisions are made impacts the use of data

The study of political economy is concerned with the incentives, institutions and ideas that underpin political, economic and social systems.

Political economy lenses are increasingly used to understand the **context in which decisions are made**. Studies of policy processes in the global south have highlighted the central role that incentives, ideologies and vested interests can play on constraining and preventing the use of evidence.^{13,14}

All decisions in the public sector – whether political, strategic, or operational – involve trade-offs between multiple competing interests. This process is further complicated as ‘evidence’ rarely gives one optimal decision. Whether evidence comes in the form of research, statistical and administrative data, or citizen data, the evidence itself can’t discern what social outcomes should be pursued and prioritised over others.^{15,16}

It is therefore important to understand the interplay between **knowledge, policy and power** in decision making processes. To do so, the framework opposite outlines the basic issues that need to be considered.

These insights from political economy emphasise that the production of good quality data is necessary for better decision making, but by itself is not sufficient. For sector monitoring programmes to be impactful, they need to engage with **political context, actors’ incentives and values, and the institutional arrangements** which shape how data is used.

Political context

Who has the strongest voice in policy debates?

What checks and balances are in place to ensure that weaker voices can be heard?

Actor’s interests, values and beliefs

Actors do not always act in their own self interests.

Values and belief systems affect who is credible in policy debates.

Types of knowledge

Considering research knowledge, citizen knowledge and implementation knowledge: is one type of knowledge dominant?

Knowledge intermediaries

How people and organisations work at the intersection of knowledge and policy has implications for how knowledge is taken up and used.

▲ Knowledge, policy, and power framework adapted from *Knowledge, policy and power in international development: A practical framework for improving policy*. Background note.¹⁷



Insights from behavioural science: the way decision makers think impacts the use of data

Over the past decade, insights from **behavioural science** have been applied to a range of policies and public services in an attempt to shift behaviours of the general public. However, more recently, behavioural scientists have begun to focus on government itself to understand and mitigate the biases that may distort policy decisions.

The table below outlines possible biases that may occur at different phases of the policy process.

Phase of the policy process	Possible biases	Description
Noticing How information and ideas enter the agenda for policy makers.	Framing	How the presentation of an issue influences whether it is noticed and how it is interpreted.
	Allocation of attention	How issues and solutions become more salient to policy actors.
	Confirmation bias	The tendency to seek out or interpret evidence in line with your existing views.
Deliberating How ideas are discussed and developed by government officials.	Group reinforcement	When people self-censor and conform to the group majority view.
	Inter-group opposition	When the pull towards group identity makes members reject the arguments of other groups, even if they are good ones.
	Illusion of similarity	When policymakers overestimate how many people share their own opinions.
Executing How policy intentions are translated into actions.	Optimism bias	A tendency to overestimate the quality of plans and the likelihood of future success.
	Illusion of control	The tendency to overestimate how much control one has over events.

▲ Adapted from *Behavioural government: Using behavioural science to improve how governments make decisions*.¹⁸

These biases can influence all actors in the WASH sector – from politicians to local officials – and can impact political, strategic and operational decisions. **Sector monitoring data** can interact with each potential bias at each phase of the policy process.

Insights from behavioural science emphasise that it is important to be aware of common biases. However, to fully address them, sector monitoring programmes must **develop processes to mitigate potential biases** and encourage greater data use.

Combining the technical, political and behavioural in a single 'data use framework'

Combining insights from the technical WASH monitoring literature with insights from political economy and behavioural science – the following framework provides a basis from which to better understand and strengthen the use of data in the WASH sector.

1. Purpose	What types of decisions are made, and by whom?	Step 1: Much of the sector monitoring literature refers to 'a decision' without specifying the purpose of that decision and who is involved in making it. However, behavioural science shows that how we reason is strongly linked to the purpose of a decision. It is therefore important that the first step of the framework seeks to identify specific <u>users</u> of data and their specific <u>uses</u> – that is, the decisions or activities that data can inform.
2. Context	What are the key features of the institutional and political environment in which those decisions are made?	Step 2: The importance of the context in which decisions are made is stressed by both political economy and behavioural science. From the perspective of the specific users and uses of data, the second step analyses the clarity of institutional arrangements, processes for planning and budgeting, and political priorities within the WASH sector and beyond.
3. Data	What types of data and information are needed by the data users for the purposes identified?	Step 3: The third step considers the types of data which are required to meet the needs of the identified uses and users. It analyses the technical features of data production and how these may interact with contextual features around decision making to either promote or inhibit the use of data.
4. Processes	How do governmental processes support evidence use and/or mitigate potential biases?	Step 4: The final step focuses on governmental processes . It analyses mechanisms for data reporting, systems for data verification, platforms for analysing and sharing data, and how monitoring processes are funded. From a political economy perspective, these processes are vital in supporting data use and they can also play an important role helping to mitigate potential cognitive biases.

Learning from experience: applying the data use framework to three country case studies

The final section of this brief **applies the data use framework** to three national examples of sector monitoring programmes. These case studies help to ground the previous theoretical discussion around data use, with practical examples of the types of insight that this analytical approach can provide.

Overview of the national sector monitoring programmes included as case studies:

● Nicaragua – Rural water and sanitation information system (SIASAR)

With funding from the national budget and the World Bank, SIASAR was piloted in 2011 and updated in 2017. It uses open source, web-based and mobile applications to collect data on four core entities: community, service provider, water system and technical assistance provider. Data is collected at community level with regional validation. Results can be aggregated to both regional and national levels. Several countries in Latin America use the same system.

● Sierra Leone – Rural WASH monitoring

There have been successive investments in data collection and analysis since 2012, supported by various development partners including World Bank, African Development Bank (AfDB), Department for International Development (DFID), United Nations Children's Fund (UNICEF) and United Nations Development Programme (UNDP). Data is sourced by staff at district level – from project, chiefdom, community or waterpoint level, depending on the data collection exercise. The WASH Data Portal (washdata-sl.org) provides interactive waterpoint functionality maps based on a 2016 mapping exercise.



● Timor-Leste – Water and sanitation information system initiative (SIBS)

SIBS was developed in 2010 through a DFAT-funded programme. It was originally SMS-based, but has defaulted to paper-based updates over the last two years. Data on service levels are sourced from Aldeia chiefs (hamlet level) by staff working at administrative post level (sub-district). In principle, data can be aggregated at higher levels, including village, municipality and national level.

Through key informant interviews and a review of the supporting literature, eight **key insights** emerge from these case studies and are presented below according to the relevant 'steps' in the data use framework.

These broad insights are **indicative** of the types of data use issues which may need to be considered when designing a user-centred sector monitoring programme. The discussion demonstrates the value of applying this analytical approach and suggests how the resulting insights could help to improve programme design, and strengthen the use of data in WASH decision making.

1

Purpose: key insights from the case studies

Decision making processes are not clear cut and 'decision makers' do not always see themselves as such.

The case studies reveal huge diversity in terms of who is involved in decisions, but also that it is not always a clear-cut process with a single, defined decision or decision maker.

In Nicaragua, there were clear examples of data-informed decisions being made that reflect the instrumental 'purposes' outlined on page 4. For example, many rural water supply and sanitation municipal plans and climate change studies have been developed using SIASAR data.

However, in other cases, even when stakeholders seemed to have a substantive role, they did not necessarily see themselves as 'decision makers'. One representative working at municipal level in Timor-Leste, for example, acknowledged they oversaw development of municipal-level plans using the SIBS data, but argued that 'decisions' were ultimately made at the central level.

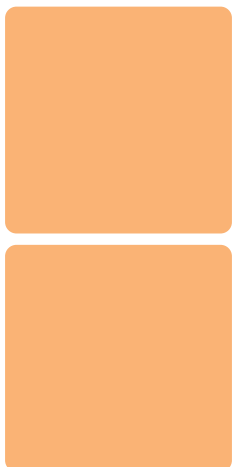
This points to the complicated and context-specific nature of decision making processes. Sector monitoring programmes that understand and work 'with the grain' of these processes are more likely to result in greater data use.

WASH monitoring data is used for several purposes – and can sometimes be useful even if not used to make specific decisions.

Focusing only on instrumental uses of data – such as for planning, budgeting or service delivery – ignores a wider variety of data uses that can have value.

Examples of data use given in Sierra Leone and Timor-Leste involved seemingly communicative applications of data. These included presentations during sector review meetings, sharing with colleagues and communities, advocating for more resources for the sector, and attempting to shift attitudes on the part of citizens.

In the eyes of data users, 'data use' spans a wide range of applications, some of which may appear at first sight to be unfocused or disconnected from instrumental decision making. Sector monitoring programmes will have a greater impact on data use if they considered all possible uses from the outset.





Context: key insights from the case studies

Wider institutional arrangements, such as decentralisation and cross-ministerial coordination, can either promote or inhibit data-informed decision making.

Decentralisation is a key issue for WASH in many countries. In Sierra Leone, local revenue is transferred to national level then handed back down, meaning funding often arrives late. Interviews also suggested some blurring of the formal demarcation of responsibility for local government. This points to factors in both fiscal and functional decentralisation which can inhibit the scope and timeliness of decision making, and therefore data use.

Looking again at Sierra Leone, the impact of inter-ministerial coordination on data use seems more positive. In 2012, a Memorandum of Understanding was signed between the ministries involved in WASH, with interviews suggesting that this arrangement works effectively, and the Ministry of Water Resources holds a clear mandate for monitoring.

This highlights the importance of aligning sector monitoring programmes with existing institutional arrangements – both vertical and horizontal – and considering the positive and negative impacts that these arrangements can have on data use.

Integrating sectoral monitoring data in core government public financial management functions is a key step in promoting data-informed decision making.

How WASH fits with processes for public financial management – including planning and budgeting – has a significant impact on data use.

In Timor-Leste, there were varying reports of integration between WASH monitoring and bottom-up planning processes. Much depended on the energy and relationships of individuals, signalling a weakness in formal institutional arrangements.

In Sierra Leone, the Ministry of Finance has passed a national directive requiring the use of water point data in all investment decisions for rural water services. However, interviews highlighted there could still be problems in mandating the use of WASH data in district development plans, owing to the independence of district governments.

This demonstrates that the integration of WASH within core governmental processes is key to data use, but also that it is important for sector monitoring programmes to understand how these processes play out in practice – not just how they appear on paper.





Data: key insights from the case studies

The type of WASH data needed is specific to the decisions being made or the potential uses, but monitoring systems are unlikely to meet all needs.

In Nicaragua, all stakeholders reported using the SIASAR data, but highlighted specific subsets of data that were especially important or relevant to their roles. For example, data on the status of service providers across communities was important for people responsible for municipal water systems, but data on the number of women in water committee boards were more useful for people responsible for gender issues. Therefore, when considering institutional arrangements or appropriate levels of disaggregation, it is important to be specific about who needs what information and when.

While all stakeholders in Nicaragua reported using SIASAR data, some also had complementary monitoring systems to cover additional data needs. In Sierra Leone, interviews highlighted the importance of financial data alongside data on WASH outputs and outcomes. With such a diversity of data needs, sector monitoring programmes need to prioritise the most critical data needs that cut across many groups of stakeholders.

Issues around data collection and processing can have important consequences for data use, and vice versa.

Seemingly technical aspects of sector monitoring can interact with more political or behavioural aspects to shape the incentives for data collection, processing and use. Where timeliness, relevance and reliability are called into question, it can undermine trust and confidence, while maintaining these qualities can drive data use.

Several stakeholders in Nicaragua, for instance, cited the regular updating of SIASAR as a key reason for their continuous use of it. Furthermore, most stakeholders also trusted the quality of data, following structured data verification process.

On the other hand, data production in Timor-Leste was undermined by lack of fuel for travel, broken phones, inaccessible data files, and inappropriate units of analysis. Stakeholders cited these issues as reasons for no longer trusting or using the data.

This highlights that neither data production or data use can be considered in isolation. Programmes must aim to strengthen the whole sector monitoring sub-system.



4

Processes: key insights from the case studies

A 'reporting culture' can discourage data use at the local level, but well-designed processes and 'data dialogues' can encourage use at all levels.

Several stakeholders in Sierra Leone and Timor-Leste, particularly those working at a more local level, noted a 'reporting culture', in which they passed data on but did not necessarily use it themselves. Reporting can serve an important purpose, but it is also possible for reporting to become an end in itself – giving the appearance of a functioning monitoring system, but without accountability, learning or improvement taking place.

In Nicaragua, the SIASAR programme contains many elements that guard against a reporting culture and incentive the use of data. These include annual competitions for municipalities and the transformation of raw data into easier to read indices and ratings.

All three case studies cited the importance of effective dialogues about progress towards WASH targets. However, the presence of review processes and 'data dialogues' is not, in itself, sufficient for increased data use. To foster a culture of data use, monitoring programmes must feed into processes that produce substantive actions and follow-up.

The way WASH monitoring and WASH interventions are designed and funded shapes the effectiveness of data use.

How sector monitoring programmes are funded can impact incentives for sustained data use. In Nicaragua, SIASAR was funded with long-term commitments from national government, municipal government and development partners. In contrast, investments in Sierra Leone and Timor-Leste have generally been more fragmented – which has jeopardised longevity and a sense of mutual ownership.

In addition to funding arrangements, the way programmes are designed can impact the end use of data, with interviews in Nicaragua highlighting the importance of engaging data users in system design. It was reported that in the development of SIASAR, a lot of effort was put into stakeholder engagement, understanding the data needs at different levels, and building relationships and trust.

To maximise data use, sector monitoring programmes must therefore develop processes that are collaborative, participatory, and take a long-term approach.

Recommendations

For governments and development partners to strengthen sector monitoring programmes and incentivise greater data use, they must:

1. Go beyond the production of data and strengthen all of the institutions, processes, and incentives required to enhance the use of data in decision making. This can be achieved by a better understanding of data use, through an analysis of purpose, context, data and processes.
2. Take a long term approach to strengthen both data production and data use. Funding for sector monitoring should be recurrent and predictable, with a clear national budget line, and donors should align behind strong government leadership.
3. Create a user-centred WASH monitoring system by co-designing programmes with the end users of data – at both national and local levels. This can ensure greater relevance, ownership and use of data across all layers of government.
4. Develop and support processes within the monitoring system to incentivise data use and mitigate potential biases in decision making.

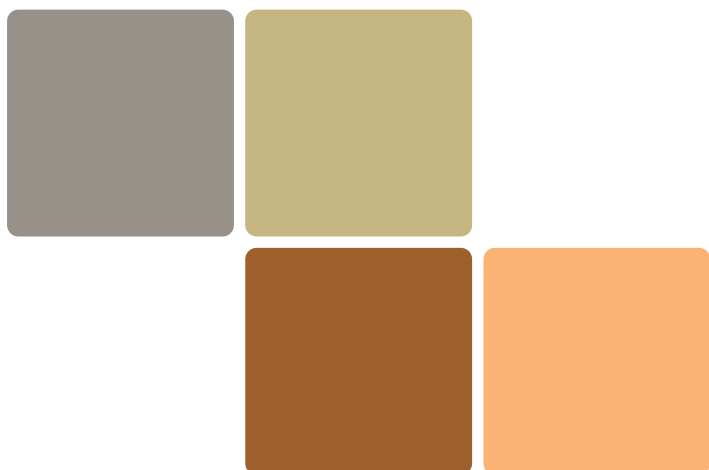


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Data use planning guide

This Policy brief is accompanied by the *Data use planning guide*. This provides step-by-step guidance to support governments and development partners to apply the data use framework to new or existing monitoring programmes.

The planning guide can be used as the first step in designing a **user-centred WASH monitoring system**, or when improving or redesigning an existing system to better support the use of data. The guide does not provide a detailed roadmap for this entire (re-)design process, but supports stakeholders to achieve a broader understanding of data use and the issues which must be considered and addressed from the outset.





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Acknowledgements

This brief was written by Stuart Kempster (Senior Policy Analyst – Governance, WaterAid), based on a report by Tiina Pasanen and Nathaniel Mason (Overseas Development Institute). It draws on research commissioned by WaterAid and conducted by the Overseas Development Institute.

Special thanks to Ellen Greggio (WaterAid) for key inputs into the conceptualisation and development of this work.

Further thanks to Louise Shaxson, Marieke Adank, Manuel Gomez, Francisca Sarmento, Clare Battle and Henry Northover for their contributions.

The *Data to decisions synthesis report* and *Data use planning guide* are available at: washmatters.wateraid.org/publications/from-data-to-decisions

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