Better Water Governance:

Evidence-Based Decision Making for Practitioners and Policymakers

June 27, 2019

*Governance refers to the **political, social, economic, and administrative systems** in place that influence water and sanitation use and management.*

USAID Global Water and Development Report, FY 2017

*"USAID will support the development and implementation of **governance systems grounded in evidence,** and which provide a sound framework for providing safe drinking water and sanitation services and water resources management at all levels."*

U.S. Government Global Water Strategy,
USAID Agency Specific Plan

Development Result 1:
Strengthen Sector Governance and Financing

Agenda

- Data Droughts and Data Floods: *Assessing and Optimizing the Value of Data for Water Governance*
  Presented by: George Van Houtven and Katie van Werkhoven
- Why Evidence Matters to Water Sector Governance: *Data, Context, and Calibration for Resources Management and WASH Service Delivery*
  Presented by: Barbara Rossmiller and Dennis Mwanza
- Q&A

Data Droughts and Data Floods:

Assessing and Optimizing the Value of Data for Water Governance

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Data is Essential for Effective Water Governance at All Levels

Governance Activities

SHORT TERM

- Day-to-day operations and communication

MEDIUM TERM

- Monitoring and compliance
- Issuing permits
- Project implementation
- Organizing and capacity building

LONG TERM

- Water management planning
- Development of laws and policies
- Research and innovation

Data is Essential for Effective Water Governance at All Levels

Examples of Data Requirements

SHORT TERM

- Weather and flood forecasting

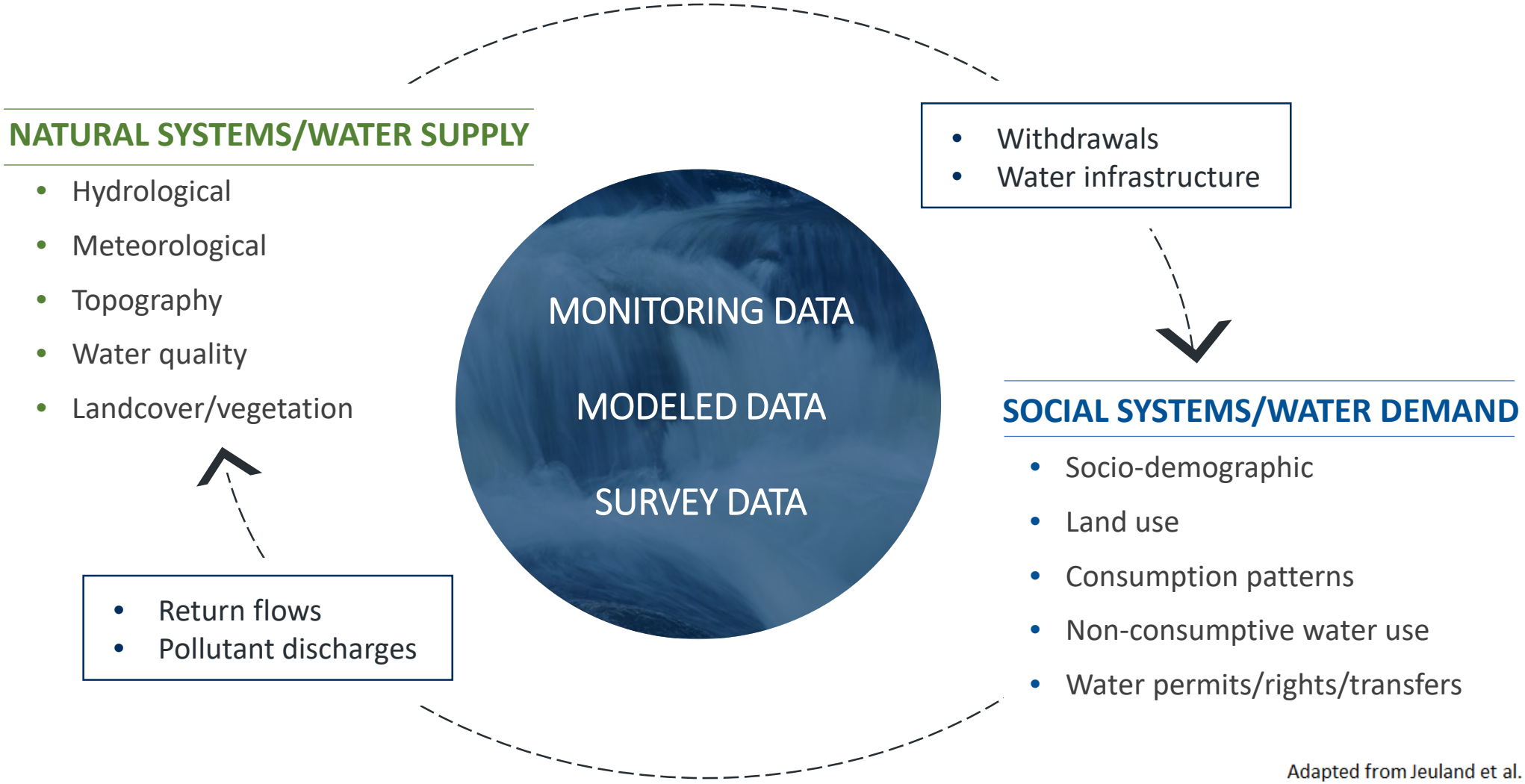
MEDIUM TERM

- Stream flow monitoring, water metering
- Sectoral water use data
- Seasonal stream flow forecast
- Public knowledge polling

LONG TERM

- Climate forecasts and population projections
- Trends in water service access and interruptions
- Remote sensing of evapotranspiration

Data Development for Water Governance Takes Many Forms



Adapted from Jeuland et al. (2018)

Evaluating Investments in Data and Information Systems

DATA DROUGHT: when data are scarce, investments in new data collection efforts must be evaluated

DATA FLOOD: when data are (over)abundant, investments in data and information management systems are a higher priority

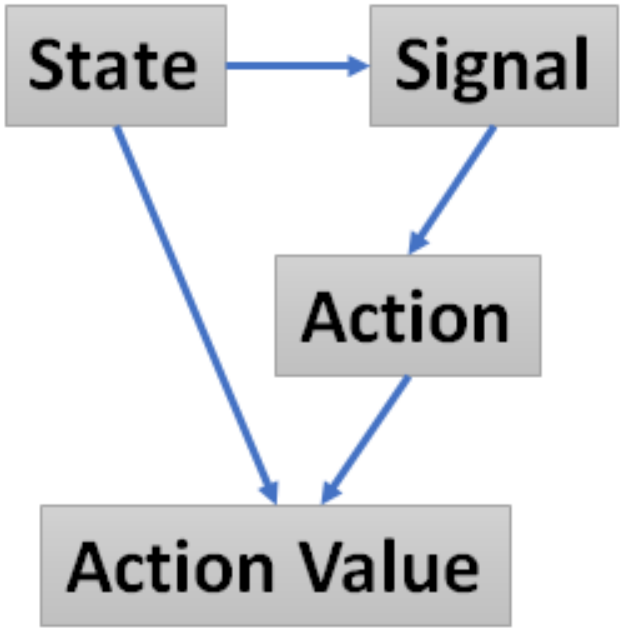
How does one estimate and compare the return on these types of investments?

- Identify the key decisions and behaviors that will be affected
- Describe in what ways and by how much the decisions will be improved

Value of Information Framework

- **State: the state of the world that is uncertain for a decision-maker**
  Flood OR no flood
- **Signal: information about the state of the world, which reduces uncertainty**
  Flood forecast
- **Action: choice of action by decision-maker, which depends on the signal**
  Evacuation order OR no evacuation order
- **Action Value: benefit or cost of action (compared to baseline), which depends on the state**

No evacuation order and flood occurs	→	cost of rescue operations
No evacuation order and no flood occurs	→	none (same as baseline)
Evacuation order and flood occurs	→	cost of evacuation
Evacuation order and no flood occurs	→	cost of evacuation



Value of Information Framework

To measure the value of information, one needs to be able to predict:

1. What actions will decision makers take when faced with different signals?

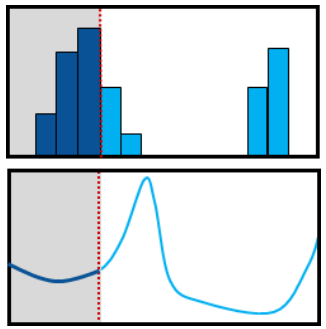
2. What are the values of different actions under different states of the world?
   - What types of losses from ill-informed actions can be avoided?

Translating Data to Value

Adapted from de Vries (2018)

Examples from RTI Projects

Translating Data to Value – the Flood Warning Example

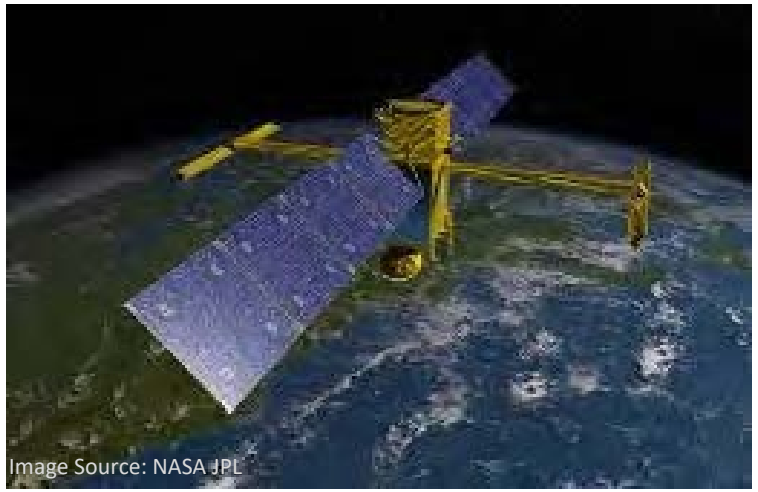


DATA → INFORMATION → KNOWLEDGE → ACTION → VALUE

Design Gap	Expertise Gap	Leverage Gap	Execution Gap
Examples: Gauge not reporting	Unknown inundation thresholds	Communication cutoff to remote areas	Lack of willingness to evacuate

Bangladesh

A geopolitically-induced Design Gap and potential satellite-based solution



Bangladesh

A solution to an Execution Gap that needs to go a step further

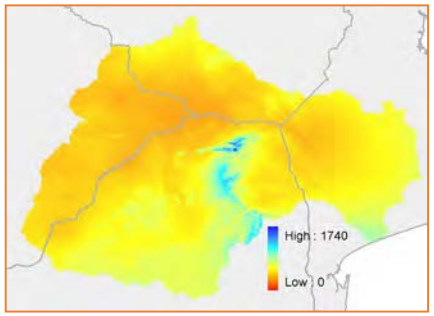
El Salvador

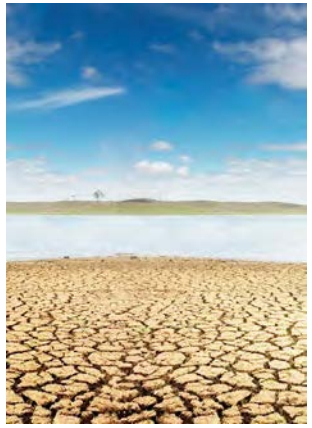
Overcoming a fundamental Execution Gap

Rio Lempa Hydrologic Forecast Center 2001

Risk Analysis Center 2012

Translating Data to Value – the Water Security Example



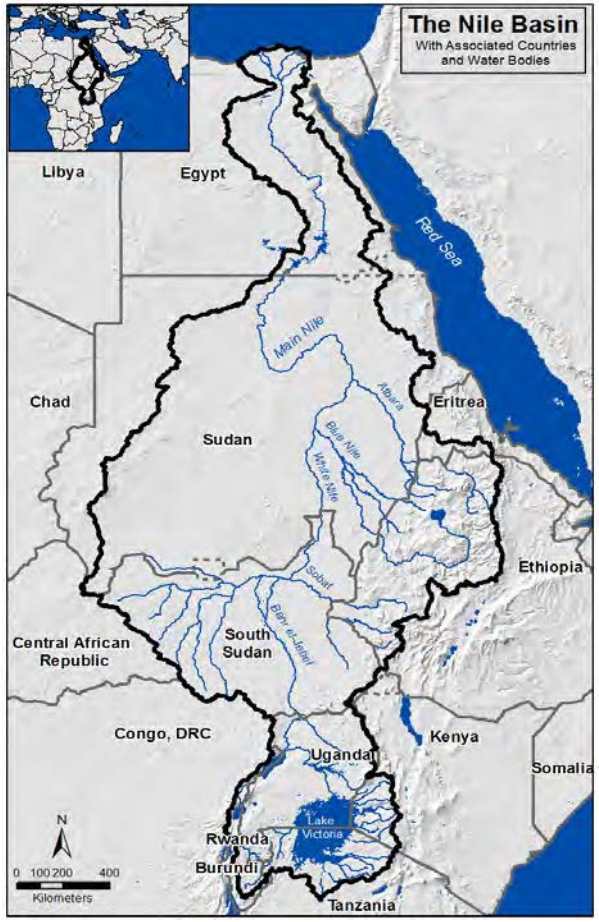


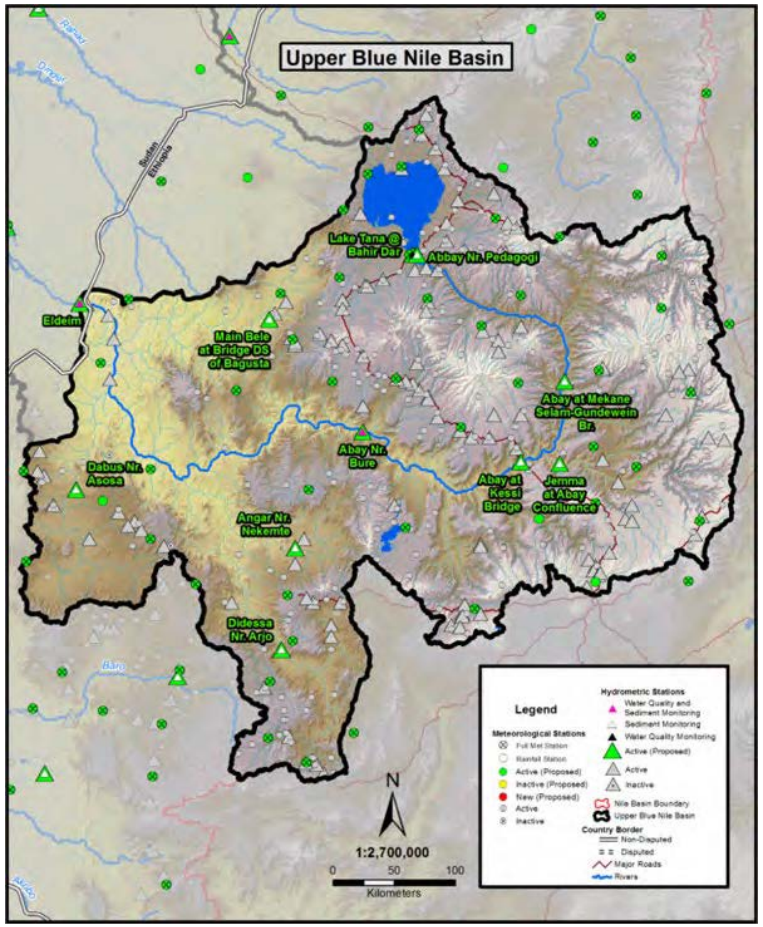
DATA → INFORMATION → KNOWLEDGE → ACTION → VALUE

Design Gap	Expertise Gap	Leverage Gap	Execution Gap
Examples: Data follow political boundaries	Ineffective communication	No defined protocols for water restrictions	Lack of incentive to follow protocols

Nile Basin Region

Progress toward overcoming a data drought for water resources management





Data Droughts and Data Floods

Optimizing the value of data…

- Finding the critical gaps in the data-to-value process
- Strengthening water governance to overcome those gaps

Why Evidence Matters to Water Sector Governance:

Data, Context, and Calibration for Resources Management and WASH Service Delivery

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Why Does It Matter?

Water governance is a prerequisite to sustainable water resources management, effective water and sanitation services, and water security.

Water is an essential input
to human and economic development.

Evidence-based Decision Making

Fundamental to good governance is the ability to **make informed decisions** based on evidence.

Evidence comes from a wide variety of sources, must reach a broad array of stakeholders and be used in many different ways.

Who Needs Evidence?

COUNTERPARTS

- Ministries
- Water agencies
- Sub-national government
- Local government

SERVICE PROVIDERS

- Utilities
- Water User Associations

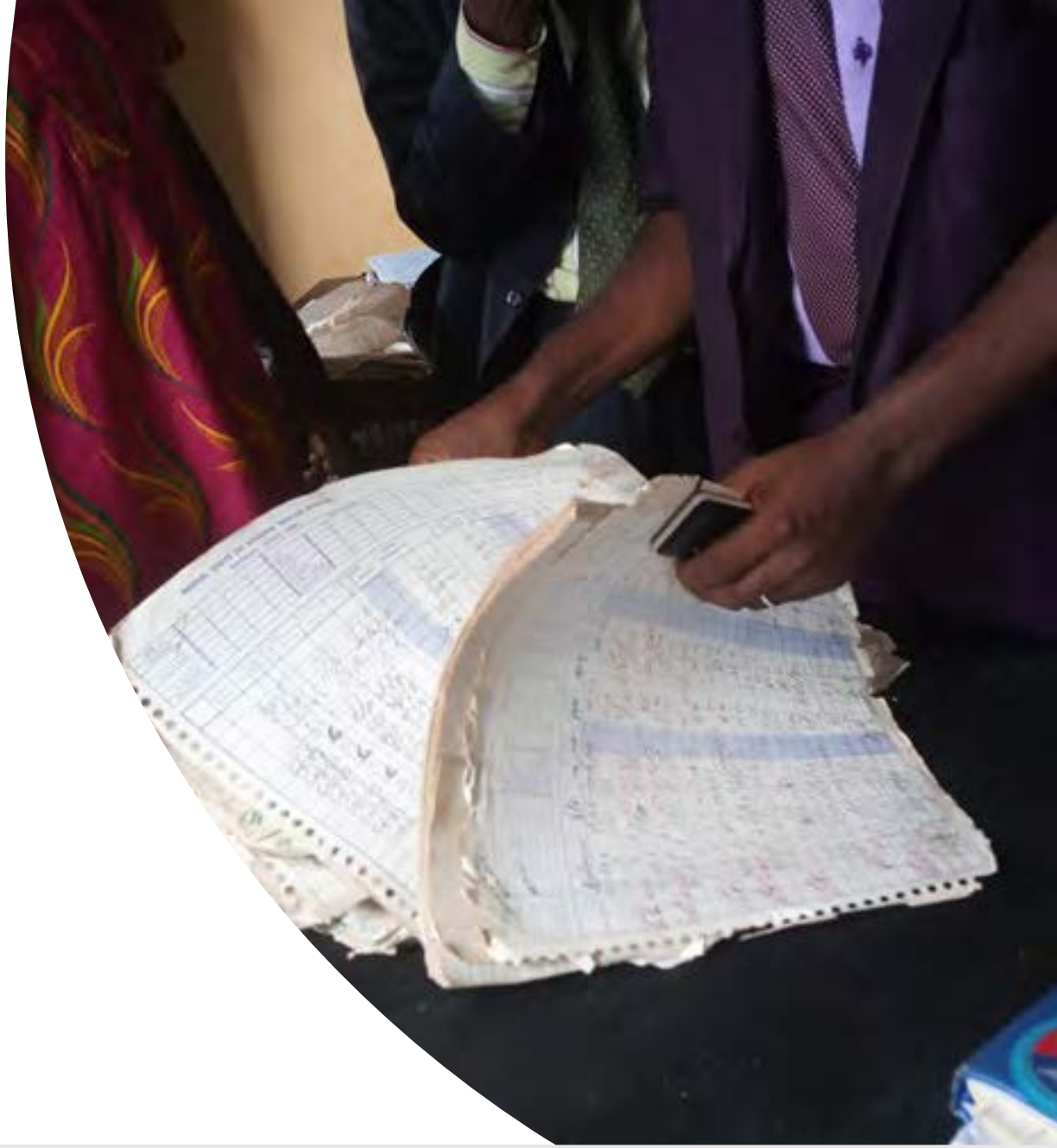
- Donors
- Implementers

- Customers
- Communities
- Regulators

What Kinds of Evidence?

COUNTERPARTS | SERVICE PROVIDERS

- **Water Quantity information**
  - Groundwater
  - Surface water
  - Rainfall / Snow melt
  - Effluent
- **Water Quality information**
  - Viability of available water supplies for intended use
- **Utility Performance Information**
  - Key performance indicators
  - Customer data



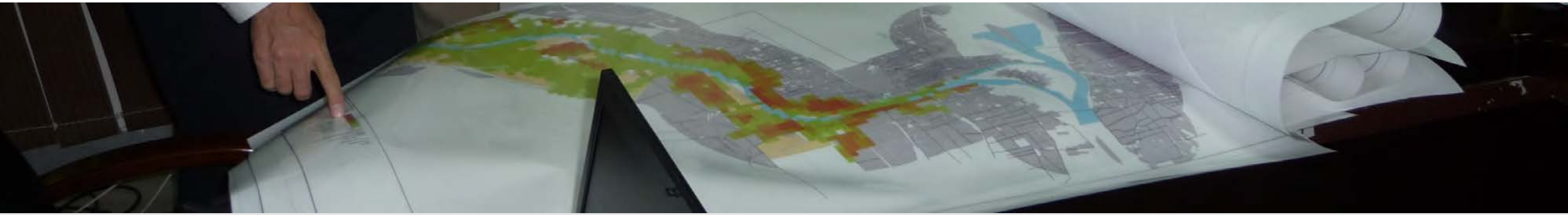
What Kinds of Evidence?

COMMUNITIES
CUSTOMERS

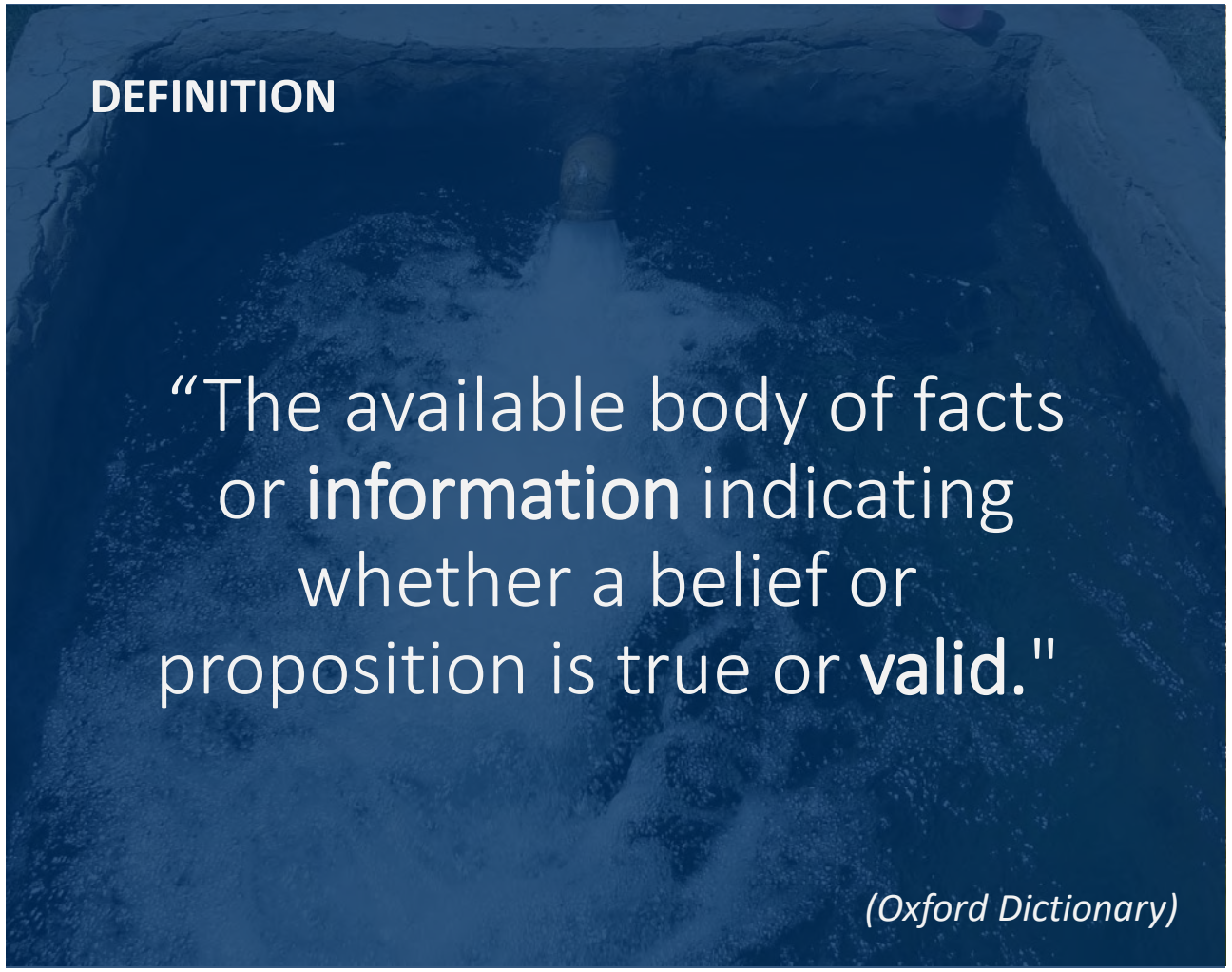
- Community Scorecards
- Town Hall meeting
- Regulatory Reports
- Media

DONORS
IMPLEMENTERS

- Political Economy Analysis
- Research Reports
- Monitoring & Evaluation



When Does Information Become “Evidence?”



- Data in isolation or without analysis is information, not evidence
- When information is used for action and corroboration, it becomes evidence - **this is the goal in strengthening governance**

Evidence-based Decision-making in Action: **Practitioners**

Operational Performance Improvement Pilot

USAID Institutional Support and Strengthening Program (ISSP)

TAFILEH, JORDAN

Objective: to support operational and management changes in the administrative units that would have a tangible effect on service delivery

Activities:

- Assessment of Critical Operational Needs -**evidence used to determine where to target support** for General Manager and USAID decision-makers
- Operations activities assessed data collection, regular monitoring and reporting on KPIs – to create evidence for utility operators
  - Fully metered production wells (went from 50% to 100%)
  - Established routine monitoring visits and data collection

Operational Performance Improvement Pilot

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TAFILEH, JORDAN

Impacts

Well field productions estimates of 1244 m3/hr were actually measured at 826 m3/hr as a result of full metering.

RESULTED IN:

New production wells drilled to make up shortfall in supply

Data collection / monitoring system discovered multiple wells with non-functioning pumps that were running but not drawing water. These pumps were either repaired or replaced.

RESULTED IN:

Main well field electricity costs dropped from 12,400 JOD/mo to 5,600 JOD/mo = SAVINGS of 6,800 JOD/mo

Problems From Lack of Evidence

USAID Effective Water, Sanitation, and Hygiene Services (E-WASH)

NIGERIA

Nigeria State Water Boards

- Manual customer records & billing
- Little or no production data
- Little or no metering of supply or distribution
- No O&M plans
- Data collection defunct and no KPIs used
- No institutional mandate for sanitation

Evidence-based Decision-making in Action: Policy Makers & Sector Managers

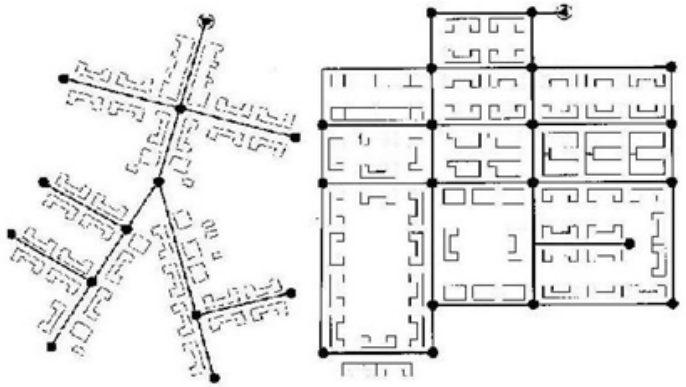
Private Water Network Service Providers

USAID SUWASA Project

MAPUTO, MOZAMBIQUE

What are Private Water Network Service Providers?

- Local water services providers
- Smaller than the utility
- Larger than the water vendors/carriers
- Operate in utility area of jurisdiction



Private Water Network Service Providers

USAID SUWASA Project

MAPUTO, MOZAMBIQUE

The Challenge

- Population: approximately 2 million
- Public utility (ARdM) not covering many parts of the city, also less than 10 hrs supply
- Government unaware of scale of problem – existence of FPAs
- Though common feature in African cities, scale is unique to Mozambique
- Government Department (DNA) was willing to address the issues but was in self denial
- Unlicensed, high tariffs, flexible, in the community, small businesses – family run, water quality

Private Water Network Service Providers

USAID SUWASA Project

MAPUTO, MOZAMBIQUE

The FPA Systems – Private Water Providers

- Public utility tariffs are low and also service provision is not reliable
- Inventory -July 2013 – 816 FPAs owned and managed by 502 entrepreneurs
- The 816 FPAs serve a total of 192,000 households compared to 185,000 served by ARdM (some households 2 connections).
- Private investments in the systems total approximately $35 Million ($10 – 50,000 each)
- 2,901 employees in the Water Sector

Wells	Owners
1	423
2	41
3	14
4	5
5	4
6	3
7	2
9	1

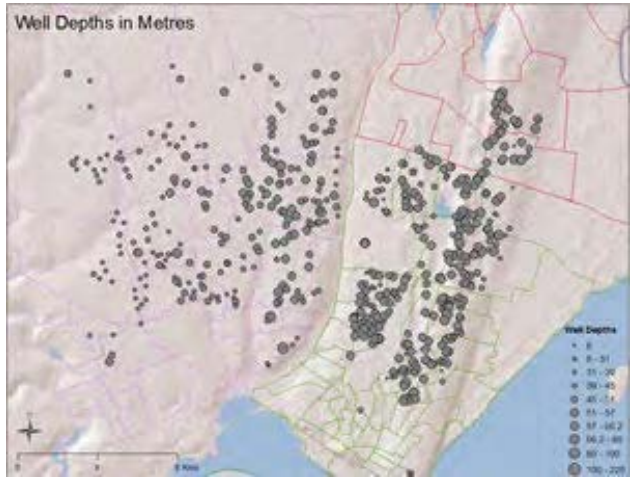
Private Water Network Service Providers

USAID SUWASA Project

MAPUTO, MOZAMBIQUE

The Power of Evidence

- Government developed **policy and legislation** to motivate and stimulate Private sector participation in water services – licensing included.
- **Licensing framework** defined – Municipalities responsible for licensing with key institutions providing advice for license to be granted i.e. FIPAG, CRA, DNA.
- CRA **agreed to regulate** the FPAs i.e. tariff, water quality, service quality (customer care, timing, value for money) etc.



New Kinds of Evidence

Donors are key decision-makers as well

- **Political Economy Analysis (PEA)** is powerful tool to inform donor programming and work beyond the technical issues
- Identifies the key constraints and opportunities, usually behind the scenes, to strengthen governance and accelerate adoption of reforms

- **Monitoring, Evaluation & Learning (MEL)** is being used not just to report progress, but to inform implementation
- This evidence informs ongoing implementation through **adaptive management**
- **MEL evidence** used to design more responsive and adaptive programs as well

Making Information Accessible

KEEP IT SIMPLE

- Turning data into evidence
- Calibrate analysis, systems, and support to the needs of the end user
- Data visualization

It's What You Do With the Data That Counts

Questions?