

summit co-coordinated by



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Data and Information

Required for informed groundwater management

Overview

Introduction

Data and information needs and sources

- Groundwater monitoring
- Groundwater assessment

Additional data and information needs

Challenges

Take home messages

UN-WATER SUMMIT ON
GROUNDWATER 2022

United Nations
UN WATER

7-8 December 2022
UN Paris HQ

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DATA AND INFORMATION

Data and information required for informed groundwater management

Rationale

Many societal and environmental problems involve groundwater. A recent overview reveals that more than 40 United Nations agencies, programmes and affiliated organisations deal with about 65 groundwater-related topics or issues, from food production to sanitation, from climate change to water supply and biodiversity. However, due to the diversity and complexity of issues and hidden character of groundwater, it is often challenging to adequately incorporate it into the water management process. To understand properly the role (provisional, regulatory, societal, supporting) of this important resource within the problem under consideration, and to choose the right management measures, data and information are required.

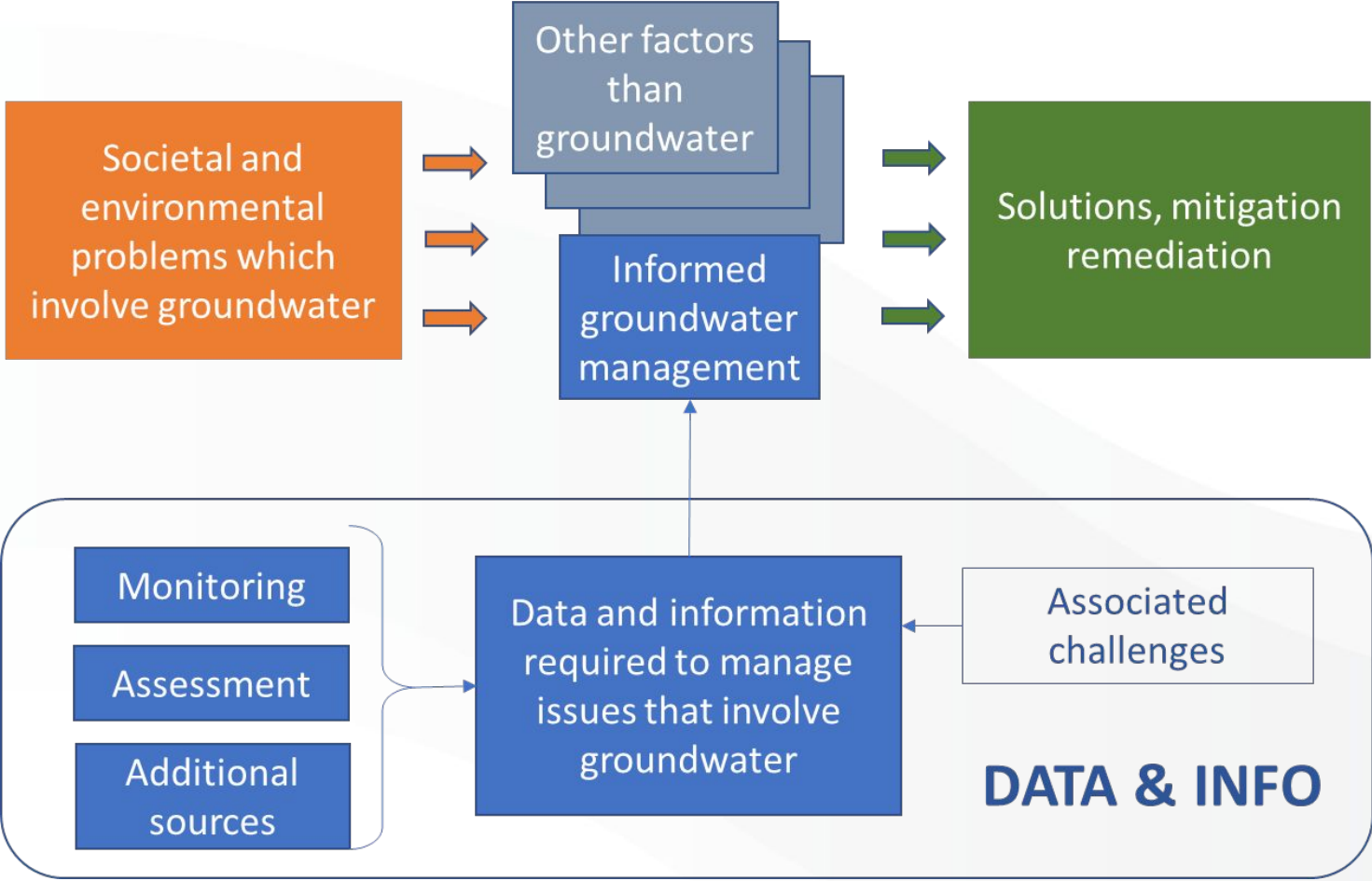
Most of the data and information necessary for informed management are obtained through groundwater monitoring and assessment. Groundwater management measures may ask for additional data and information, depending on the problem under consideration and the role of groundwater in it. These main sources of data and information are briefly addressed in this overview, along with related challenges.

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graph LR; A[Societal and environmental problems which involve groundwater] --> B[Other factors that groundwater]; B --> C[Informed groundwater management]; C --> D[Solutions, mitigation remediation]; E[Monitoring] --> F[Data and information required to manage issues that involve groundwater]; G[Assessment] --> F; H[Additional sources] --> F; F --> I[Associated challenges]; F --- J[DATA & INFO];
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Introduction



Data and information needs and sources (1/2)

- Groundwater monitoring: the systematic measurement/observation and recording of the state of an aquifer.

Purpose

Parameters

Frequency

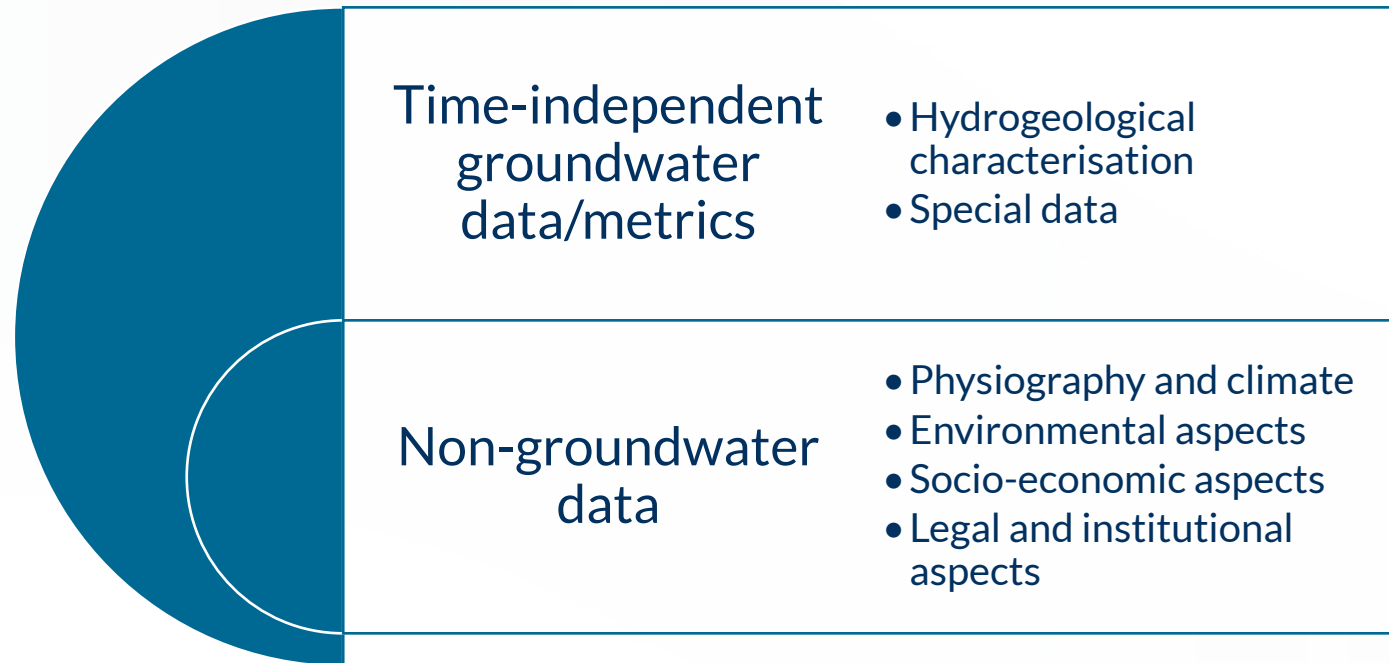
Traditional and new approaches

Quality assurance and control



Data and information needs and sources (2/2)

- Groundwater assessments use monitoring outcomes together with all other relevant information to evaluate the status of the groundwater resource.



Additional data and information needs

Measures,
tools and
instruments

Supply

Demand

Protection

Regulations

Stakeholders' participation



Challenges

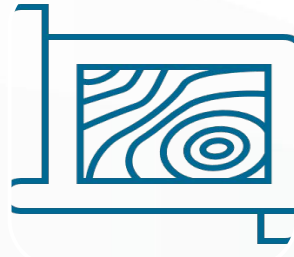
- Duplicated, contradictory and/or non-existent mandates to collect groundwater data
- Lack of resources (human and financial)
- General lack of sharing of data and information
- Poor data management without proper QA and QC
- Data collected is not transformed into useful information



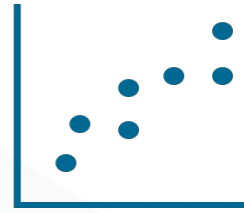
Take home messages (1/2)



Current scientific knowledge and methods and tools available are sufficient to address most groundwater management issues.



Groundwater assessments at field level are crucial to enable informed policies and management of groundwater resources.



No groundwater assessment is complete, and no reliable prediction can be made without an in-depth analysis of historical data.



Data that are findable, accessible, interoperable and reusable (FAIR) will support transforming data into useable information for decision making.



Take home messages (2/2)



Specific data and information are needed to manage societal and environmental issues that involve groundwater.



Multiple challenges need to be addressed to ensure informed (ground)water management.



Raising awareness, increasing citizen participation and lobbying for appropriate monitoring and assessment is crucial for groundwater sustainability.



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