



Presented at the FIG Working Week 2023,  
28 May - 1 June 2023 in Orlando, Florida, USA

# FIG WORKING WEEK 2023

28 May - 1 June 2023 Orlando Florida USA

Protecting  
Our World,  
Conquering  
New Frontiers

# IGIF for Integrated Catchment Management

## Data Governance Strategy in Lesotho Based on Integrated Geospatial Information Framework (IGIF)

Ronald Ssengendo, Lorenz Jenni, Moisés Poyatos, Jan Schulz  
Landnetwork GmbH



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## ReNOKA Support to Integrated Catchment Management in Lesotho



Implemented from January 2020 to December 2023 as a multi donor action with European Union and German Government financing, ReNOKA is an inclusive and holistic movement to protect and conserve the natural resources of Lesotho and the Orange-Senqu River Basin.



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## ReNOKA Support to Integrated Catchment Management in Lesotho



- Output 1: A harmonized policy framework for integrated catchment management
- Output 2: Effective, efficient and inclusive institutions
- Output 3: Human capacities, skills and knowledge
- Output 4: Implementation of watershed rehabilitation and conservation measures
- **Output 5: Capacities for coordination, monitoring and supervision**



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## Landnetwork GmbH

We are a network of experts in land management, land governance and land rights in international development cooperation.

[landnetwork.ch](http://landnetwork.ch)



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## ReNOKA Support to Integrated Catchment Management in Lesotho



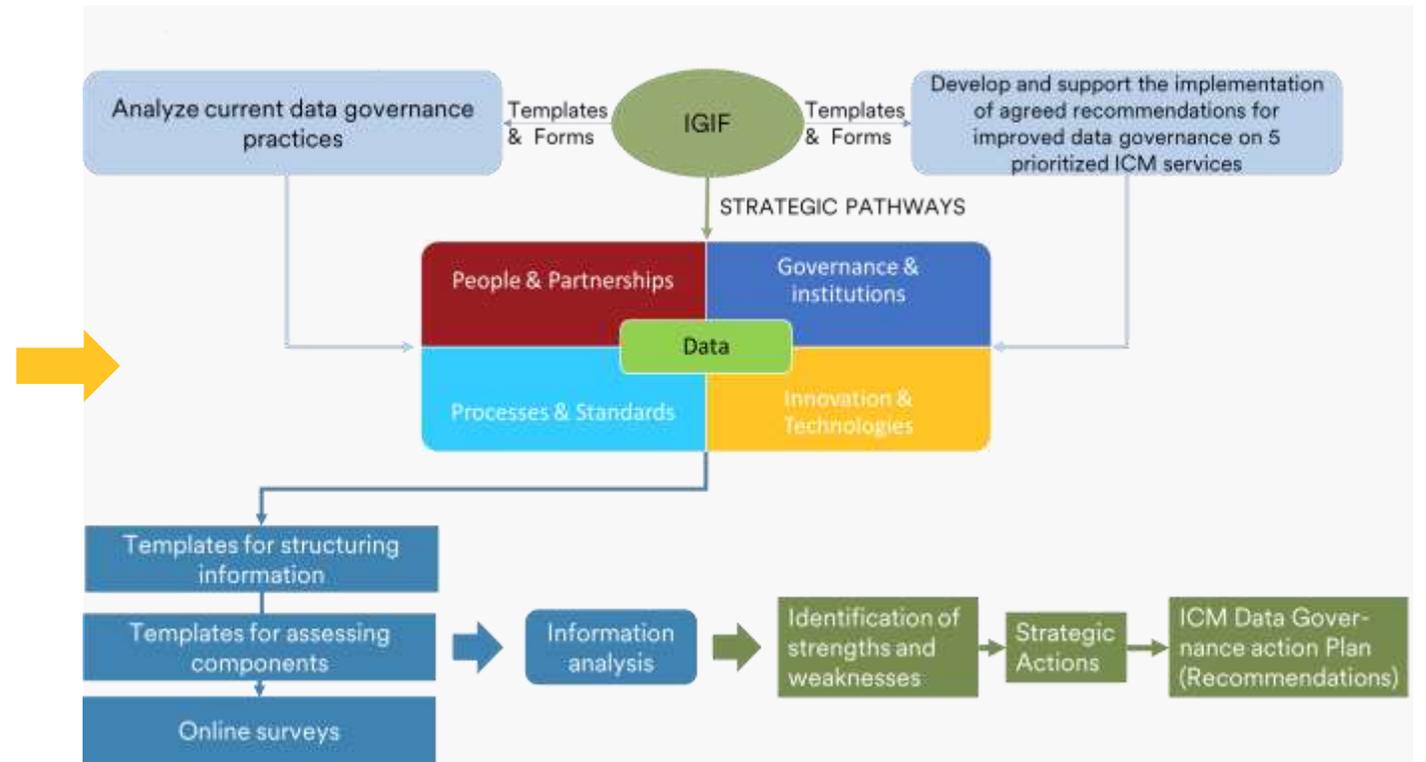
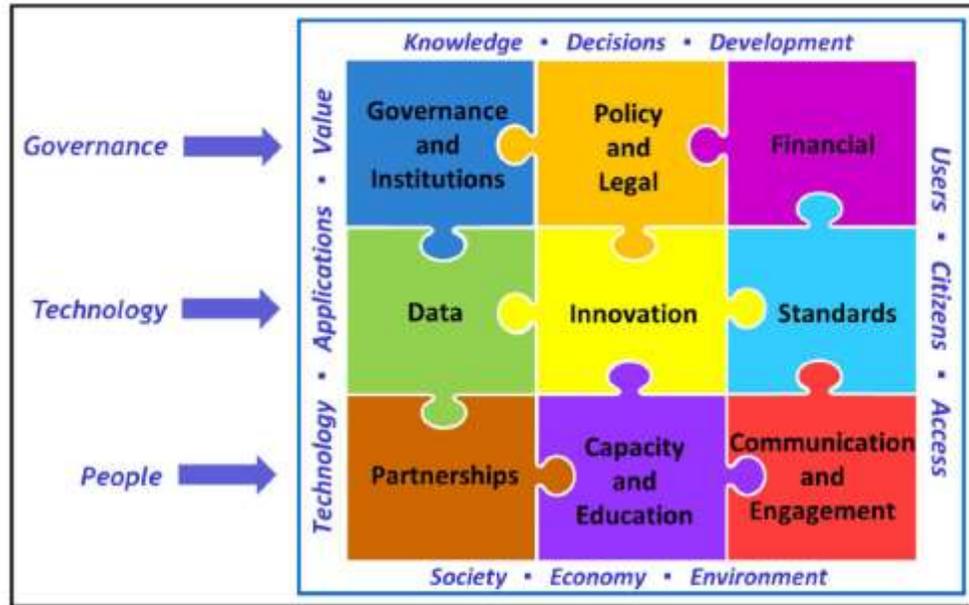
LandNetwork has been mandated by GIZ to support output 5, specifically:

- **Support improvements in data governance**
- Provide **assistance and recommendations on the collection and use of data** for national monitoring of ICM-related parameters and learning
- Contribute to the overall **capacity development of the ICM Data and Monitoring Unit** and relevant stakeholders, and support specifically in learning and innovation, putting a specific focus on gender.

## Why good data governance?

- Good data governance is crucial for **coordinating the efforts of the many different stakeholders** contributing to the ICM
- **ICM relies heavily on the use of data for analysis, planning and reporting** for which good data governance is mandatory
- Good data governance practices should define roles, responsibilities, and processes, and **ensure that production, dissemination, access and the use of data is organized in a standardized and efficient way.**

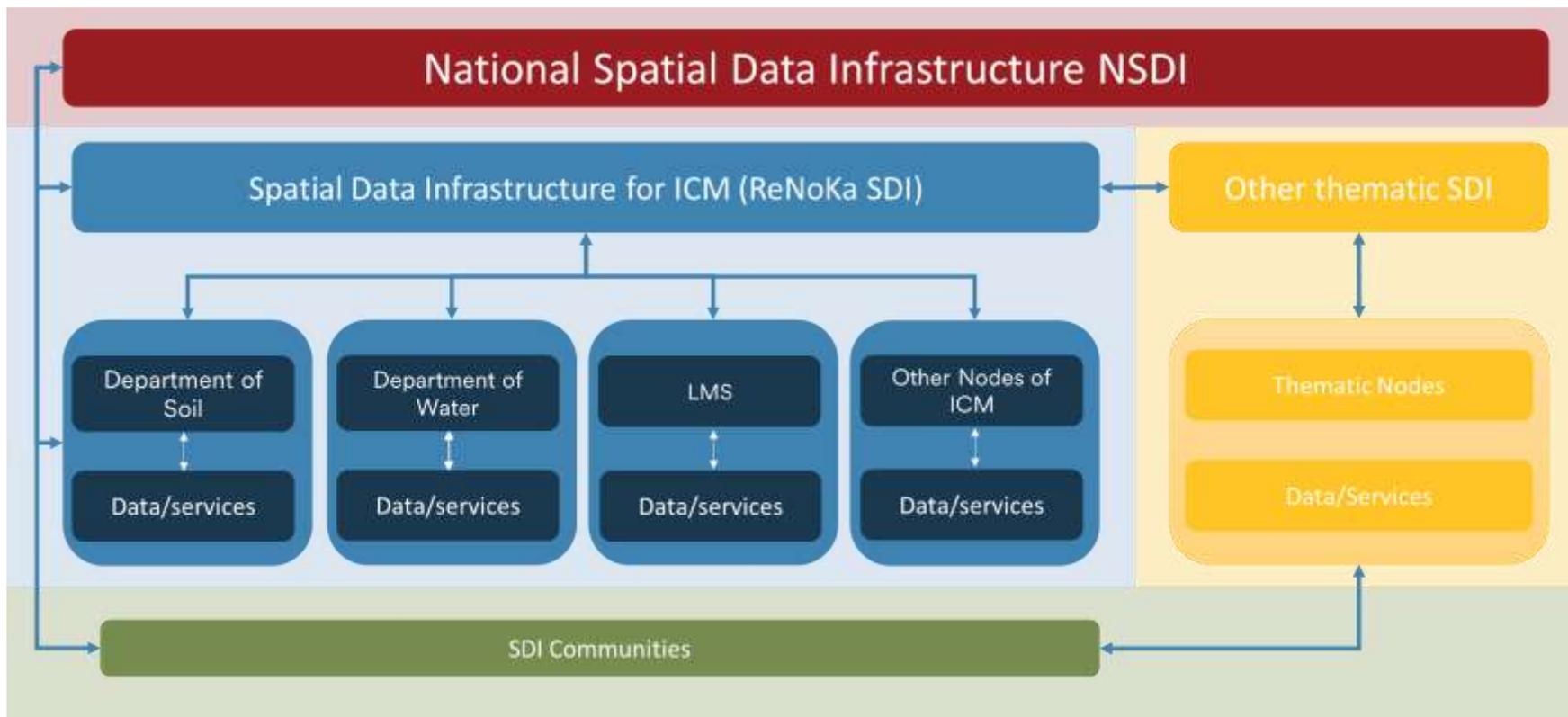
## Methodology of Assessment - IGIF Analytical Framework



## Adapted IGF for ICM Lesotho

<b>Vision</b>						
<b>Mission</b>						
<b>Lesotho specific Strategic Drivers</b>						
National development Agenda ● Community Expectations ● Agenda 2030 ● Sendai Framework for Disaster Risk Reduction ● UNFCCC (Paris Agreement) ● UNCCD (Land Degradation)						
<b>Underpinning Principles</b>						
Strategic Enablement	Transparent and Accountable	Reliable, Accessible and Easily Used	Collaboration and Cooperation	Integrative Solution	Sustainable and Valued	Leadership and Commitment
<b>Goals for ICM in Lesotho</b>						
Goal 1: Quality Information	Goal 2: Accessible and Useful	Goal 3: Good Governance	Goal 4: Maximized Innovation			
<b>Prioritised Strategic Pathways for Data Governance in ICM for Leshoto</b>						
Governance and Institutions	People and Partnerships	Processes and Standards	Innovation and Technologies	Data		
<b>Definition – Objective – Specific objectives</b>						
<b>Strategic Actions</b>						
<b>Specific Recommendations for Implementation (applied to two use cases)</b>						

## Spatial Data Infrastructure for ICM (ReNOKA SDI)



## Strategic actions - Pathways for ICM

Processes and Standards	Innovation and Technologies
<ol style="list-style-type: none"> <li>1. Define the framework of processes and standards which enables interoperability between data and management systems.</li> <li>2. Provide standards and technological tools of an SDI framework with ICM focus.</li> <li>3. Define data agreements and MoU between institutions for ICM in aspects related to data access and sharing, protection, licensing, etc.</li> <li>4. Define an open data policy on ICM aligned with current government policies.</li> <li>5. Define metadata profile for ICM data and establish mechanisms for creation of metadata.</li> </ol>	<ol style="list-style-type: none"> <li>1. Design an SDI Geoportal for ICM, based on guidelines established by NSDI if existing.</li> <li>2. Implement and provide access to technological tools in compliance with the framework of data interoperability.</li> <li>3. Adding concepts of ICM data processing based on 4.0 technologies (Big Data, Internet of Things, present data in dashboards)</li> <li>4. Define a development framework for implementing SDI technological components based on open-source SW</li> <li>5. Develop applied research projects at university level in the framework of ICM data governance, standards (metadata profiles) and geoportal development.</li> <li>6. Define criteria for measuring the digital divide in the framework of data governance in ICM, SDI for ICM.</li> </ol>

## Recommendations – Pathways for ICM

Processes and Standards

<ul style="list-style-type: none"> <li>Identify minimum standards required for interoperability and starting data exchange               <ul style="list-style-type: none"> <li>Data Product Specifications: ISO 19131</li> <li>Data Quality: ISO 19157</li> <li>Metadata: ISO 19115</li> <li>OGC: WMS, WFS, WCS</li> </ul> </li> </ul>	High	Short Term
<ul style="list-style-type: none"> <li>Identify minimum standards required for processes               <ul style="list-style-type: none"> <li>Quality Plan 10005</li> <li>Quality Management Systems 9001</li> <li>Data access restrictions (sensitive data, personal data)</li> </ul> </li> </ul>	Medium	Mid Term
<ul style="list-style-type: none"> <li>Working group develops implementing guide for identified minimum standards, metadata profile and processes and workflows (including maintenance procedures).</li> </ul>	High	Mid Term
<ul style="list-style-type: none"> <li>Working group supports institutions in application of implementing guide and metadata profile.</li> </ul>	High	Mid Term Long Term
<ul style="list-style-type: none"> <li>Identify requirements regarding data agreements, data protection and access restrictions/personal data privacy; open data between involved institutions aligned with the data governance model.</li> </ul>	Medium	Mid Term

## Conclusions

- IGIF was adapted for the needs of ICM in Lesotho, with the main outcome of a clear pathway and implementation plan for improved ICM data governance.
- IGIF provided a solid framework with many useful templates that can be used for analysis and as a basis for developing the pathway for improved data governance for ICM in Lesotho.
- It also helped to elaborate a joint vision for ICM data production and use, address the most critical issues and to develop the pathway and specific recommendations.