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## 4.24 Quantitative status of groundwater

**Project Name:** UNaLab (Grant Agreement no. 730052)

**Author/s and affiliations:** Maria Dubovik, Laura Wendling, Ville Rinta-Hiiro, Arto Laikari, Malin zu-Castell Rüdenhausen

*VTT Technical Research Centre Ltd, P.O. Box 1000 FI-02044 VTT, Finland*

Quantitative status of groundwater	Water management
<b>Description and justification</b>	Water covers ca. 71 % of the Earth's surface but only 2.5 % of it is fresh, stored as groundwater and in glaciers. Water is vital for living organisms, and it enables a multitude of human activities such as agriculture, manufacturing and transportation of goods. Available water resources are being extensively used for a variety of purposes, and ensuring that the water quality is monitored and the degraded water bodies are enhanced is essential for protecting the water resources. EU Water Framework Directive (2000/60/EC) sets forth the framework for integrated management of surface waters and groundwater resources in the EU Member States, which are presented as River Basin Management Plans.
<b>Definition</b>	The degree to which a body of groundwater is affected by direct and indirect abstractions (good, poor)
<b>Strengths and weaknesses</b>	+ A comparable EU-wide applied assessment - Requires arrangements on Member State-level
<b>Measurement procedure and tool</b>	The following procedure is based off the requirements set by the Water Framework Directive (2000/60/EC): <ol style="list-style-type: none"> <li>1. Define groundwater bodies within a river basin area</li> </ol>

	<ol style="list-style-type: none"> <li>2. Establish type-specific reference conditions per Annex V</li> <li>3. Identify significant anthropogenic pressures</li> <li>4. Identify and estimate significant water abstractions for urban, agricultural, industrial and other uses, including seasonal variations and total annual demand</li> <li>5. Identify and estimate loss of water in the distribution systems</li> <li>6. Estimate recharge and artificial recharge of groundwater bodies</li> <li>7. Estimate the effects caused by water regulation, flood protection and land drainage</li> <li>8. Establish monitoring of quantitative status for groundwater: <ol style="list-style-type: none"> <li>a. Groundwater level monitoring network</li> <li>b. Density of monitoring sites</li> <li>c. Frequency of monitoring</li> <li>d. Additional monitoring requirements for protected areas as listed under Annex IV</li> </ol> </li> <li>9. Present monitoring results as maps in accordance with Annex V</li> <li>10. Interpret groundwater quantitative status per Annex V</li> </ol>								
<b>Scale of measurement</b>	River basin; Member State								
<b>Data source</b>									
<b>Required data</b>	Anthropogenic pressures on groundwater reserves; Water abstraction rates; Land-use; Water regulation activities; Water losses								
<b>Data input type</b>	Quantitative and qualitative								
<b>Data collection frequency</b>	<p>Frequency of monitoring for drinking water abstraction points:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Community served</th> <th style="text-align: center;">Frequency</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">&lt; 10 000</td> <td style="text-align: center;">4 per year</td> </tr> <tr> <td style="text-align: center;">10 000 – 30 000</td> <td style="text-align: center;">8 per year</td> </tr> <tr> <td style="text-align: center;">&gt; 30 000</td> <td style="text-align: center;">12 per year</td> </tr> </tbody> </table>	Community served	Frequency	< 10 000	4 per year	10 000 – 30 000	8 per year	> 30 000	12 per year
Community served	Frequency								
< 10 000	4 per year								
10 000 – 30 000	8 per year								
> 30 000	12 per year								
<b>Level of expertise required</b>	Moderate to High								
<b>Synergies with other indicators</b>	Indicators forming parts of the Member States' River Basin Management Plans: <i>Quantitative status of groundwater, Chemical status of groundwater, Ecological status of surface waters, Biological status of</i>								

	<i>surface waters, Hydromorphological status of surface waters, Physicochemical status of surface waters and Ecological potential for heavily modified or artificial water bodies</i>
<b>Connection with SDGs</b>	SDG 6 Clean water and sanitation, SDG 11 Sustainable cities and communities, SDG 12 Responsible consumption and production, SDG 13 Climate action
<b>Opportunities for participatory data collection</b>	No opportunities identified
<b>Additional information</b>	
<b>References</b>	<p>European Parliament. (2000). <i>Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.</i>  <a href="http://data.europa.eu/eli/dir/2000/60/oj">http://data.europa.eu/eli/dir/2000/60/oj</a></p> <p>European Parliament. (2006). <i>Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration.</i>  <a href="http://data.europa.eu/eli/dir/2006/118/2014-07-11">http://data.europa.eu/eli/dir/2006/118/2014-07-11</a></p> <p>European Commission. (2012). <i>Report from the Commission to the European Parliament and the Council on the Implementation of the Water Framework Directive (2000/60/EC). River Basin Management Plans.</i></p>

## 4.25 Depth to groundwater

**Project Name:** UNaLab (Grant Agreement no. 730052)

**Author/s and affiliations:** Laura Wendling<sup>1</sup>, Ville Rinta-Hiiri<sup>1</sup>, Maria Dubovik<sup>1</sup>, Arto Laikari<sup>1</sup>, Johannes Jermakka<sup>1</sup>, Zarrin Fatima<sup>1</sup>, Malin zu-Castell Rüdénhausen<sup>1</sup>, Peter Roebeling<sup>2</sup>, Ricardo Martins<sup>2</sup>, Rita Mendonça<sup>2</sup>

<sup>1</sup> VTT Technical Research Centre Ltd, P.O. Box 1000 FI-02044 VTT, Finland

<sup>2</sup> CESAM – Department of Environment and Planning, University of Aveiro, Campus Universitário de Santiago, 3810-193 Aveiro, Portugal

Depth to groundwater	Water Management
<b>Description and justification</b>	Measurement of depth to groundwater in a well is frequently performed to examine changes in the level of the water table.
<b>Definition</b>	Depth from land surface reference point to top of groundwater table (m)