



9th International Symposium on Managed Aquifer Recharge
ISMAR9 CALL TO ACTION
SUSTAINABLE GROUNDWATER MANAGEMENT POLICY DIRECTIVES
June 2016, Mexico City, Mexico

Background and Introduction

This document was developed during two working sessions at the International Association of Hydrogeologists International Symposium for Managed Aquifer Recharge in June 2016 in Mexico City, Mexico, for decision-makers and the public to inform, engage and educate stakeholders on the critical need for addressing our shrinking groundwater resources now, before it is too late. A working group further contributed to the document in the weeks following ISMAR-Mexico, as indicated on the following pages.

Water is truly precious and essential for life, but limited and finite in extent occurring as surface water (lakes, rivers and wetlands) at the land's surface, and as groundwater in aquifers below the ground. Surface water constitutes 3% of the world's freshwaters and is visible, measurable and manageable; groundwater constitutes 97% of freshwater and is out of sight, generally not well measured, and therefore more difficult to understand, manage and protect in terms of quantity and quality. Groundwater and surface water are intricately linked, with groundwater providing base flow to surface water systems (feeding water to rivers and wetlands), and acting as a buffer to supply water during dry periods and droughts.

Groundwater is increasingly relied on globally for water supply and food security, yet is not being adequately invested in, regulated, managed or sustained on a global basis. It is a common pool resource, highly susceptible to overuse, resulting in the classic tragedy of the commons, with depletion in many areas of the world. Current and emerging challenges to maintaining the quantity and quality of groundwater resources include climate change and variability, pressures from a growing population, increasing urbanization, and large agricultural demands. Sustainable groundwater management should be implemented throughout the world, and done so consistent with the following policy directives.

Sustainable Groundwater Management Policy Directives

- I. Recognize aquifers and groundwater as critically important, finite, valuable and vulnerable resources.
- II. Halt the chronic depletion of groundwater in aquifers on a global basis.
- III. Aquifer systems are unique, need to be well understood, and groundwater should be invisible no more.
- IV. Groundwater must be sustainably managed and protected, within an integrated water resource framework.
- V. Managed Aquifer Recharge should be greatly increased globally.
- VI. Effective groundwater management requires collaboration, robust stakeholder participation and community engagement.





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Related Literature

- FAO, UNESCO-IHP, IAH, WBG and GEF – March 2016.
Global Framework for Action to achieve the Vision on Groundwater Governance.
http://www.groundwatergovernance.org/fileadmin/user_upload/groundwatergovernance/docs/GWG_FRAMEWORK_EN.pdf
- California Sustainable Groundwater Management Act, 2014.
<http://www.water.ca.gov/cagroundwater/legislation.cfm>
- European Commission, European Communities 2008.
Groundwater Protection in Europe, Brochure on the New Groundwater Directive, Consolidating the EU Regulatory Framework.
<http://ec.europa.eu/environment/water/water-framework/groundwater/pdf/brochure/en.pdf>
- Directive 2006/118/EC of the European Parliament and Council of 12 December 2006 on the protection of groundwater against pollution and deterioration.
<http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02006L0118-20140711>

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