



Sustainable Groundwater Management: Concepts and Tools

Briefing Note Series

Editors: Stephen Foster & Karin Kemper

Scope & Target

The GW•MATE Briefing Note Series is being produced by the World Bank Groundwater Management Advisory Team, which also acts as a Global Water Partnership Associate Program. The series is intended to give a concise introduction to the theory and practice of the various facets of groundwater resource management and protection, in a convenient and readily accessible format. Thus each note aims to answer the 'most frequently-asked questions' on the topic concerned, especially in a developing nation context.

The primary target audience comprises:

- water resources managers of limited groundwater experience
- groundwater specialists with limited exposure to water resource management.

The series should also be of general interest to all senior executives in water and environmental management. In view of the multidisciplinary nature of the groundwater resource management challenge, the series is being written in a style that should be intelligible across all the professional disciplines working in the water sector.

The overall structure of the series is as follows: ① ② broad introduction to the scope of groundwater management and groundwater system characterization, ③ ④ ⑤ ⑥ ⑦ essential components of management practice for major aquifers with large groundwater storage under stress from intensive water-supply development for irrigated agriculture and/or urban water-supply, ⑧ the protection of potable groundwater supplies, ⑨ ⑩ ⑪ planning national and regional action for groundwater resource management, and ⑬ ⑭ management of smaller-scale water-supply development in the rural environment. The remainder of the series ⑮ ⑯ ⑰ ⑱ deals with a number of specific topics which pose a special challenge.

Publication Arrangements

The GW•MATE Briefing Note Series has been designed by Words and Publications, Oxford, UK, and published by the World Bank, Washington D.C., USA. It is also available in electronic form on the World Bank water resources website (www.worldbank.org/gwmate) and the Global Water Partnership website (www.gwpforum.org).

The findings, interpretations, and conclusions expressed in this Series are entirely those of the authors and should not be attributed in any manner to the World Bank, to its affiliated organizations, or to members of its Board of Executive Directors or the countries they represent.

Funding Support



GW•MATE (Groundwater Management Advisory Team) is a component of the Bank-Netherlands Water Partnership Program (BNWPP) using trust funds from the Dutch and British governments.





Briefing Note Series

(titles in bold are already available (or will shortly appear) on the GW•MATE website
www.worldbank.org/gwmate)

CORE TOPICS

1

Groundwater Resource Management
an introduction to its scope and practice

2

Characterization of Groundwater Systems
key concepts and frequent misconceptions

3

Groundwater Management Strategies
facets of the integrated approach

4

**Groundwater Legislation and
Regulatory Provision**
*from customary rules to integrated
catchment planning*

5

Groundwater Abstraction Rights
from theory to practice

6

**Stakeholder Participation in
Groundwater Management**
*mobilizing and sustaining aquifer
management organizations*

7

**Economic Instruments for
Groundwater Management**
using incentives to improve sustainability

8

Groundwater Quality Protection
defining strategy and setting priorities

9

Groundwater Monitoring Requirements
*for managing aquifer response
and quality threats*

10

**Implementation of Groundwater
Management Measures**
defining government roles and priorities

SPECIAL TOPICS

11

Utilization of Non-Renewable Groundwater
*a socially-sustainable approach to
resource management*

12

Urban Wastewater as Groundwater Recharge
evaluating and managing risks and benefits

13

**Groundwater Resource Development in
Minor Aquifers**
*management strategy for village
and small town water-supply*

14

Natural Groundwater Quality Hazards
*avoiding problems and
formulating mitigation strategies*

15

**Groundwater Dimensions of National
and River-Basin Planning**
ensuring an integrated strategy

16

Groundwater Dependent Ecosystems
*characterization procedures
and conservation measures*

17

Salinization of Groundwater
diagnosis, control and utilization

*(Briefing Notes covering further
'Special Topics' to follow)*