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Book review: Groundwater around the World: A Geographic Synopsis, by Jean Margat and Jac van der Gun (CRC Press, 2013)

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The management and sharing of water resources between nations have been perceived as increasingly important priorities in world politics for almost two decades, as has been pointed out by many commentators such as Fred Pearce (2006). Indeed, it has been said that wars will be fought over diminishing water resources particularly in the Middle East where groundwater is the principle water resource. For such problems to be resolved peacefully, it is important that the issues are understood by those in a position of influence, few of whom are sufficiently technically qualified and, therefore, must rely on advice from those with a recognized expertise in the field.

Groundwater around the World: A Geographic Synopsis (Margat and van der Gun 2013) is an impressive book, written by two internationally well-known hydrogeologists. It is an up-to-date summary of what is known about groundwater across the world, and it is aimed primarily at a readership consisting of high-level decision-makers in both international organizations and national governments rather than being a textbook or practical guide to assist the typical practicing hydrogeologist in everyday work. However, it can be expected that the latter will find it fascinating to be able to compare the aquifer systems where they work with those across the rest of the planet. It will also appeal to students and practitioners in environmental science and even politics and economics.

The book is based on an earlier one written by Jean Margat (Margat 2008) that was published in French jointly by the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Bureau de Recherches Géologiques et Minières (BRGM), which is the French geological survey. This English version is not a simple translation of the 2008 original but has been updated and expanded largely by Jac van der Gun in close collaboration with Jean Margat and with the assistance of a large number of other people around the world. It has been organized in eight chapters, each explaining an aspect of hydrogeology or groundwater management in a global context and is supported by six appendices that provide a useful glossary and a wealth of statistics on mega aquifer systems, global groundwater regions and estimates of groundwater abstraction broken down on a country-by-country basis.

The authors start by explaining the role of groundwater in the hydrological cycle followed by different types of aquifers based on geological properties all within a global context. This is followed by a description of groundwater abstraction systems and the need for groundwater resource management and protection, again using examples from around the world. The main text closes with a discussion of the significance of groundwater to both mankind (including socio-economic issues) and environmental systems and the current threats that are impacting on groundwater systems. The book ends with an explanation of the need for improved and more ambitious active resource management that can only be achieved with international cooperation.

An inevitable limitation of any book that covers such a wide subject is the limitation in the depth of detail that it can contain on any particular aspect. For example, where groundwater conditions are reviewed across individual countries, the United Kingdom is treated as a single entity. Most people would think that fair enough; however, it ignores the realities that groundwater conditions vary greatly between the individual countries within the UK and that the legal framework for the management of water resources is also very different in these countries. It also ignores the marked differences in aquifer types in each of the UK countries as well as the proportion of groundwater abstracted for public supplies, by industry and for agriculture. Having made those observations, it must be said that such a lack of detail does not detract from the main thrust of the book in any significant way.

The book has been written in very clear language and it will help non-hydrogeologists understand the complexities of

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aquifer systems and groundwater resource management and protection. It has been produced to a very high standard and illustrated by over 100 well-drawn figures most of which are in colour and some 36 tables that summarize data. The authors also use a total of 23 text boxes to explain in detail various technical and scientific concepts outside the flow of the main text such as explaining what constitutes an aquifer system and the relationship between groundwater and surface water. The book also contains a long list of references at the end of each chapter and a well-structured index that, together with the data contained in the appendices, will make it a valuable research resource.

The authors have certainly met the objective of summarizing groundwater conditions on a worldwide basis for the international decision makers and it is hoped that it will make a valuable contribution to enabling individual states to cooperate in the management and sharing of groundwater resources without a recourse to war.

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