
Water Ecosystem Services

A Global Perspective

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Population growth, economic development, and urbanisation are putting pressure on the world's water resources. The need to develop a more sustainable approach to the management of water resources, and the need to protect ecosystems where these resources are found, has become increasingly important.

This comprehensive volume describes how ecosystem services-based approaches can assist in addressing major global and regional water challenges, such as climate change, biodiversity loss, and water security in the developing world, by integrating scientific knowledge from different disciplines, such as hydrological modelling and environmental economics. As well as consolidating current thinking, the book also takes a more innovative approach to these challenges, involving disciplines such as psychology and international law.

Empirical assessments at the national, catchment, and regional levels are used to critically appraise this systemic approach, and the merits and potential limitations are presented. The practicalities of this approach with regard to water resources management, nature conservation, and sustainable business practices are discussed, and the role of society in underpinning the concept of ecosystem services is explored.

Presenting new insights and perspectives on how to shape future strategies, this contributory volume is a valuable reference for researchers, academics, students, and policy makers, in environmental studies, hydrology, water resource management, ecology, environmental law, policy and economics, and conservation biology.

DR. JULIA MARTIN-ORTEGA is Senior Environmental Economist at the James Hutton Institute, Scotland. With ten years of research experience, she has an interdisciplinary background in environmental sciences and economics, with an emphasis on environmental valuation, and an interest in qualitative approaches to social science. Her research, focusing on the understanding of the relationships between people and water ecosystem services, has informed policy making in relation to issues such as the implementation of the European Water Framework Directive and the development of the Water Resources (Scotland) Act. She currently leads the James Hutton Institute – UNESCO Global Initiatives Directive on water ecosystem services.

PROFESSOR ROBERT C. FERRIER is Director of Research Impact at the James Hutton Institute. His extensive research interests centre on the role of policy and land use change on water resources and the development of systems-based approaches for sustainable management. He has 30 years' experience in water resources management, particularly the hydrological, hydrochemical, and ecological consequences of environmental change, in both freshwater and coastal systems. He is also Director of the Centre of Expertise for Waters (CREW), and is involved in delivering the Scottish Government's Hydro Nation agenda, both domestically and internationally.

PROFESSOR IAIN J. GORDON is Chief Executive and Director of the James Hutton Institute, Scotland. He has played an active role in promoting the value of biodiversity and its importance in the provision of ecosystem services and human wellbeing, and has managed projects in Africa, Asia, South America, and Australia, including major research portfolios on land management to improve the water quality of the catchments flowing into the lagoon of the Great Barrier Reef.

PROFESSOR SHAHBAZ KHAN is Deputy Director of Asia and the Pacific Regional Science Bureau of UNESCO, where he advises UN member states on environmental policies, review of curricula, and securing multilateral support for research and education projects, especially in the Asia-Pacific and African regions. He has been involved in a range of innovative water management programmes through his work with the Australian government. Professor Khan was previously Chief of Water and Sustainable Development at UNESCO, Paris, and prior to this was Professor of Hydrology and Director of the International Centre of Water at the Charles Sturt University, Australia.