



## Water Publications March 2006



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#### **Foreword**

Across the globe, the World Conservation Union (IUCN) demonstrates how well managed water-related ecosystems support the provision of goods and services that are essential to reduce poverty. They provide the basic resources on which many livelihoods depend. In its field projects IUCN involves local communities, research organisations, expert networks, governments and non-governmental agencies to turn the principle of ecosystem management into sustainable solutions.

The result is relevant knowledge and experience to advise natural resources managers around the world. This helps the development of policies, agreements and practices that allow healthy ecosystems to continue to contribute to local economies, human wellbeing and biodiversity. By taking an inclusive approach and creating tangible results, IUCN remains at the forefront of creating new knowledge and know-how for sustainable water resources management.

This catalogue provides a collection of IUCN water-related publications that address the key issues and innovations in policy, practice and theory. Combining a wealth of knowledge and expertise acquired at the local, national and international level, this catalogue is an essential resource for water practitioners, policy makers, researchers, students, local governments and communities worldwide.

Ger Bergkamp Head, Water Programme The World Conservation Union (IUCN)

Front cover picture: © Taco Anema/IUCN

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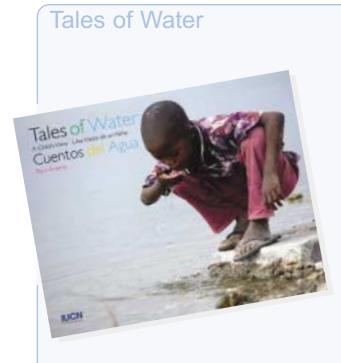
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#### 1. Photobooks



Water is both the most ordinary and extraordinary of resources; without it, nothing can survive. Yet 1,1 billion people around the world do not have ready access to clean water and more than 2,6 billion people lack basic sanitation. If there is magic on this planet, it is contained in water, which is about nothing less than our planet's future.

During his travels around the world, to five continents and fifteen nations, working with the World Conservation Union (IUCN), Dutch photographer Taco Anema listened to the voices of children telling their stories of the importance of water. In this magical journey seen through the fresh and spontaneous eyes of children, the focus is on the wonder of water, its power, and its beauty. Let the children inspire us to take action for a better and sustainable world for all!

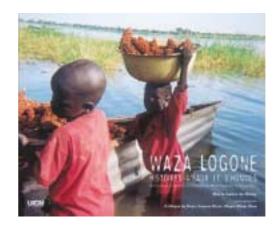
ISBN 1-884167-58-6, 2006 216 x 279mm, c.200 pp., colour photos £25 Order no. B1476

## Waza Logone Histoires d'eaux et d'hommes

Marie-Laure de Noray

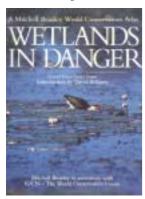
En août 1994, à la suite de diverses études, de judicieuses ouvertures faites dans la digue latérale du barrage de Maga ont permis d'alimenter à nouveau le Logomatya et de réamorcer ainsi l'inondation de la plaine de Waza Logone. Dans ce livre les pasteurs, les pêcheurs, les gens rencontrés au détour des pistes ou des chenaux en période de crues rétablies, racontent la vie revenue vingt ans après la mise en place du barrage. Après 12 ans de collaboration entre UICN et les habitants de Waza Logone, des organisations locales vont reprendre en main le développement durable de leur région.

ISBN 2-8317-0642-4, 2002 215 x 260mm, 128pp., photos couleur £15.50 Order no. B1158



#### Wetlands in Danger

General Editor: Patrick J. Dugan Introduction by David Bellamy



This fully-illustrated title provides the reader with a unique overview of the state of the world's wetlands. The extensive atlas section, with maps showing their conservation status, is the result of a major mapping collaboration with WCMC and IUCN. Throughout the atlas, colourful feature-spreads focus on wetland issues in each region. The book concludes with positive recommendations for the future of wetlands, and their conservation.

Published by Mitchell Beazley in association with IUCN.

ISBN 1-85732-166-9, 1993 300 x 235mm (hardback), 192pp., fully illus.

£19.99

Order no. B952

### 2. Ecosystem Management

#### 2.1 Environmental Flows

#### Flow

#### The Essentials of Environmental Flows

Edited by Megan Dyson, Ger Bergkamp and John Scanlon



An environmental flow is the water regime provided within a river, wetland or coastal zone to maintain ecosystems and their benefits where there are competing water uses and where flows are regulated. Pioneering efforts in South Africa, Australia and the United States have shown that the process to establish them poses great challenges. This guide draws extensively on the experiences in these countries to offer hands-on advice and practical guidance on technical issues for this emerging issue on the water resource agenda.

ISBN 2-8317-0725-0, 2003 250 x 190mm, xiv + 118pp., colour photos £20 Order no. B2015

#### Débit

Les débits environnementaux: ce qu'il faut savoir

Edité par Megan Dyson, Ger Bergkamp et John Scanlon

ISBN 2-8317-0789-7, 2005 250 x 190mm, xiv +149pp., colour photos £20 Order no. B1471

#### Caudal

Elementos Esenciales de Caudales Ambientales

Editado por Megan Dyson, Ger Bergkamp y John Scanlon

Available from IUCN Regional Office for Meso-America, Moravia, Apartado Postal 01 46 2150, San José, Costa Rica; Tel +506 241 0101; Fax +506 240 9934; correo@orma.iucn.org; www.iucn.org/places/orma/

ISBN 2-8317-0788-9, 2005 250 x 190mm, xiv + 125pp., colour photos £20 Order no. B1447

#### Conceptualization of Environmental Flow in Costa Rica

Preliminary Determination for the Tempisque River

Jorge A. Jiménez, Julio Calvo, Francisco Pizarro, Eugenio González

Growing pressures on water available for ecosystem use, increase in population growth (2,5%) and land use trends generate a rising water demand (28 km³/day). How much water should be preserved to sustain natural ecosystems is a question for which the answer depends on a myriad of variables but is definitely a political decision.

The "Environmental Flow" concept highlights the need to reach an agreement among different river basin stakeholders to determine how much water should be preserved for natural ecosystems.

ISBN 9968-743-98-4 250 x 190mm, 42 pp., ill.

Available from IUCN Regional Office for Meso-America, Moravia, Apartado Postal 01 46 2150, San José, Costa Rica; Tel +506 241 0101; Fax +506 240 9934; correo@orma.iucn.org; www.iucn.org/places/orma/

#### Conceptualización de Caudal Ambiental en Costa Rica

Determinación Inicial para el Río Tempisque

Jorge A. Jiménez, Julio Calvo, Francisco Pizarro, Eugenio González



La población costarricense con un crecimiento demográfico cercano al 2,5% anual genera una demanda media de 28 km³/día, de los cuales 9,3 km³ son utilizados en consumo humano. La pérdida en disponibilidad del líquido, tanto por su consumo en otros usos, como por pérdida de su calidad, hace que otros usuarios, tales como el ambiente, cuenten cada vez con menos agua.

Cuanta agua se debiera preservar para mantener los ecosistemas naturales es una respuesta que depende de muchos factores y en definitiva es una decisión política. El concepto de "caudal ambiental" trata, precisamente de enfatizar la necesidad de un proceso de concertación entre los diferentes usuarios como mecanismo para determinar cuanta agua se debe de preservar para los ecosistemas naturales.

ISBN 9968-743-91-7, 2005 250 x 190mm, 40pp., ill.

Available from IUCN Regional Office for Meso-America, Moravia, Apartado Postal 01 46 2150, San José, Costa Rica; Tel +506 241 0101; Fax +506 240 9934; correo@orma.iucn.org; www.iucn.org/places/orma/

## Rapid Environmental Flow Assessment for the Huong River Basin

#### Available in hard copy from:

Asia and Wetlands Programme, IUCN Regional Office for Asia, 63 Sukhumvit 39 Soi Phrompong, Sukhumvit Road, Wattana, Klongtan, Bangkok 10110, Thailand; Tel +66 (2) 662 4029; Fax +66 (2) 662 4388; iucn@iucnt.org; www.iucn.org/places/asia

#### 2.2 Climate Change Adaptation

#### Change

Adaptation of Water Management to Climate Change

Ger Bergkamp, Brett Orlando and Ian Burton



Climate change is here and will be with us for the long term. The challenge facing water professionals is how to make decisions in the face of this new uncertainty. This book outlines a new management approach that moves beyond technical quick fixes towards a more adaptive style that is inclusive and innovative. Only by thinking, working and learning together can we tackle the impacts on water resources and uncertainties induced by climate change.

ISBN 1-8317-0702-1, 2003 250 x 190mm, xii + 53pp.

£10.50

Order no. B1203

Available in the United States and Canada from Island Press.

#### Changez

Adapter la gestion des ressources en eau au changement climatique

Ger Bergkamp, Brett Orlando et Ian Burton

ISBN 2-8317-0754-4, 2003 250 x 190mm, xii + 60pp., ill., maps Available in PDF format at: www.iucn.org/themes/wani/ pub/changez.pdf

#### Cambio

Adaptación de la Gestión de los Recursos Hídricos al Cambio Climático

Ger Bergkamp, Brett Orlando y Ian Burton

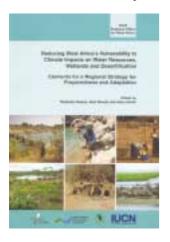
ISBN 2-8317-0755-2, 2003 250 x 190mm, xi + 53pp, ill., maps.

Available from IUCN Regional Office for Meso-America, Moravia, Apartado Postal 01 46 2150, San José, Costa Rica; Tel +506 241 0101; Fax +506 240 9934; correo@orma.iucn.org; www.iucn.org/places/orma/

#### Reducing West Africa's Vulnerability to Climate Impacts on Water Resources, Wetlands and Desertification

Elements for a Regional Strategy for Preparedness and Adaptation

Madiodo Niasse, Abel Afouda and Abou Amani



West Africa is among the most vulnerable regions to climate change worldwide. The often disastrous impact of climate variability and extreme events over the past thirty years is a striking illustration and a harbinger of this vulnerability. It is therefore urgent that decision makers and the general public in West Africa be fully sensitized on the climatic challenges facing the region and actions to be taken, to enhance the region's level of preparedness in order to cope with the predictable impacts of climate variability and change and the associated extreme events. This document contributes to achieving this objective.

ISBN 2-8317-0782-X, 2004 297 x 210mm, xvii + 66pp.

£12

Order no. B2084

Réduire la vulnérabilité de l'Afrique de l'Ouest aux impacts du climat sur les ressources en eau, les zones humides et la désertification

Eléments de stratégie régionale de préparation et d'adaptation

Madiodo Niasse, Abel Afouda and Abou Amani

ISBN 2-8317-0783-8, 2004 297 x 210mm, xviii + 71pp.

£12 Order no. B2085

#### 2.3 Ecosystems and Livelihoods

# The Role and Nutritional Value of Aquatic Resources in the Livelihoods of Rural People

A Participatory Poverty Assessment in Attapeu Province, Lao PDR

Eric Meusch, Jintana Yhoung-Aree, Richard Friend and Simon Funge-Smith



As a contribution to the Dialogue on Water, Food and the Environment, the FAO Regional Office for Asia and Pacific and IUCN – The World Conservation Union have undertaken a joint initiative to investigate the relationships between living aquatic resources, rice agriculture and the livelihoods of the people who manage these systems.

2003

297 x 210mm, vi + 33pp., tables, colour photos Available from The Aquaculture Officer, FAO Regional Office for Asia and Pacific, Maliwan Mansion, 39 Phra Athit Road, Bangkok 10200, Thailand

## Artisanal Fishing, Sustainable Development and Comanagement of Resources

Analysis of a successful project in West Africa

Eric Baran and Philippe Tous

This document reports on a project for the comanagement and valorization of fisheries resources, carried out by IUCN Guinea-Bissau since 1991 (Rio Grande de Buba region). It aims to provide a summary analysis of the approach taken by the project and its achievements, in order to provide a set of guidelines and lessons learned which will enable replication of the project in other sites.

ISBN 2-8317-0535-5, 2000 295 x 210mm, iv + 42pp., figures, maps, b/w photos £8.50 Order no. B632

#### Pêche artisanale, développement et cogestion durables des ressources

Analyse d'un succès en Afrique de l'Ouest

Eric Baran and Philippe Tous

ISBN 2-8317-0536-3, 2000 295 x 210mm, iv + 42pp., figures, maps, b/w photos £8.50 Order no. B633

## Enhancing Sustainable Livelihoods

A Case Study from Wanathavilluwa, Sri Lanka

L. P. D. Dayananda

In spite of the fact that Sri Lanka has a relatively high Human Development Index (HDI) overall, the majority of families living in coastal areas fall into the poorest category. This Poverty Environment Nexus study was intended to assess the main causal mechanisms that bring about poverty and environmental degradation. Having determined this, the study then attempted to identify, from the quantitatively driven empirical analysis, which groups (gender, ethnic or economic) are hardest hit by environmental degradation. Policy recommendations for "Enhancing Sustainable Livelihoods" was the most important output of the study.

#### Occasional Papers of IUCN Sri Lanka No. 6

ISBN 955-8177-33-4, 2004 297 x 210mm, iii + 36pp., tables, photos

Available from the IUCN Sri Lanka Country Office, 53 Horton Place, Colombo 7, Sri Lanka; Tel +94 (11) 268 2418; Fax +94 (11) 268 2470; iucn@iucnsl.org; www.iucnsl.org

## Fishing for a Living: the Ecology and Economics of Fishponds in Central Europe

Fishponds represent a rich natural and cultural heritage of tremendous importance and are of great economic value to the regions in which they are found. This is particularly true of the fishponds found in Central and Eastern Europe, some of which were established 5 and 600 years ago. However, the social, cultural, economic and political upheaval that has characterized the recent history of the region has brought in its wake serious implications for their survival. This report, the results of a project entitled "Environmental/economic appraisal of commercial fish pond operations in four Central European countries" draws on the experiences of four participating countries: Czech Republic, Hungary, Poland and Slovakia to assess the natural and economic values of their fishponds and proposes a series of recommendations for their future conservation.

ISBN 2-8317-0386-7, 1997 240 x 165mm, x + 184pp., tables, maps £15 Order no. B269

#### Participatory Poverty Assessment in Lower Songkhram River Basin, Thailand

Available in PDF format only. www.mekongwetlands.org/Products/Livelihoods/index.htm

Participatory Poverty Assessment in Attapeu Province, Lao PDR

Available in PDF format only. www.mekongwetlands.org/Products/Livelihoods/index.htm

#### Participatory Poverty Assessment in the Plain of Reeds, Vietnam

Available in PDF format only. www.mekongwetlands.org/Products/Livelihoods/index.htm

## Participatory Poverty Assessment in Stung Treng, Cambodia

Available in PDF format only. www.mekongwetlands.org/Products/Livelihoods/index.htm

### 2.4 Lake, Floodplain, Delta and Wetland Management

#### Ecosystem Management: Lessons from around the World

A Guide for Development and Conservation Practitioners

Edited by Jean-Yves Pirot, Peter-John Meynell and Danny Elder



The future of much of the biosphere will depend on managing large areas using an integrated approach that recognises human populations have a keen interest in ensuring the continuing productivity of the ecosystems within which they live. Such an approach will have to meet local needs, maintain or restore ecosystem integrity and conserve biodiversity. The guide presents the principles of the ecosystem approach and demonstrates how the concept can be introduced into policies, procedures, practices and investment support. The current state of knowledge of ecosystem management is included and the editors draw together the key lessons learned in the past 10 years from a number of major field projects. The guide integrates theory with these lessons from experience and translates them into practical operational guidance for development and conservation practitioners

ISBN 2-8317-0542-8, 2000 210 x 150mm, x + 123pp., figures, tables £15

Order no. B609

## From Conversion to Conservation

Fifteen Years of Managing Wetlands for People and the Environment in Uganda.

At the occasion of the 9th Conference of Parties to the Ramsar Convention on Wetlands (8–15 November 2005), Uganda took great pride in sharing its experiences in wetland management with the world. These experiences are based on a partnership between the Government of Uganda, the World Conservation Union (IUCN) and the Royal Netherlands Embassy, who collaborated for more than ten years to develop policies, build institutions and financing mechanisms, implement management approaches and empower communities. This book tells the story of how Uganda came to be a recognised world leader in wetland management.

ISBN 2-8317-0896-6 250 x 190mm, xi + 92pp

Available from IUCN Regional Office for Eastern Africa, Wasaa Conservation Centre, Mukoma Road (off Magadi Road), City Square, PO Box 68200, Nairobi 00200, Kenya; Tel +254 (20) 890 605/06/07; Fax +254 (20) 890 615;mail@iucnearo.org; www.iucn.org/places/earo/ and from the Wetlands Inspection Division, PO Box 9629, Kampala, Uganda; www.ugandawetlands.org

#### Lake Naivasha

Local Management of a Kenyan Ramsar Site

Research, analysis: Kim Geheb, edited by: Kelly West

Lake Naivasha is a rare example of a designated "Wetland of International Importance" (Ramsar Site) where the mandate to manage the site resides with the local community. Community members led the effort to seek designation for the site and develop a management plan. A voluntary association of concerned residents and commercial, agricultural, administrative and municipal interests meets regularly to discuss progress and matters arising in the implementation of the management plan. Lake Naivasha is a successful case of community-based natural resource management and the process, described in this report, may serve as a model and inspire other groups in the management of other wetlands of local or international importance.

ISBN 2-8317-0900-8, 2005 250 x 190mm, 79pp., colour photos

Available from IUCN Regional Office for Eastern Africa, Wasaa Conservation Centre, Mukoma Road (off Magadi Road), City Square, PO Box 68200, Nairobi 00200, Kenya; Tel +254 (20) 890 605/06/07; Fax +254 (20) 890 615; mail@iucnearo.org; www.iucn.org/places/earo/

## The Rehabilitation of the Delta of the Senegal River in Mauritania

Fielding the Ecosystem Approach

Olivier Hamerlynck and Stéphanie Duvail

The Convention on Biological Diversity (CBD) advocates an ecosystem approach to environmental management, and spells out the principles in its Appendix 1. However, applying these principles can sometimes be less than straightforward. This book tells the story of an ecosystem approach to the rehabilitation of the lower delta of the Senegal River in Mauritania, in and around Diawling National Park. Its main objective is to provide practitioners with a "feel" for what the approach can entail in the real-life setting of a remote corner of the Sahel, where people's livelihoods are inextricably tied to the productivity of their delta.

ISBN 2-8317-0751-X, 2003 240 x 165mm, viii + 85pp., photos £10.00 Order no. B1405

## La restauration du delta du fleuve Sénégal en Mauritanie

Une application de l'approche écosystémique

Olivier Hamerlynck et Stéphanie Duvail

La restauration du delta ces onze dernières années a conduit à l'amélioration des moyens d'existence de ses habitants en rétablissant la biodiversité qui était dégradée. « Le projet du Diawling montre que l'approche écosystème, appliquée à la restauration d'une zone humide sérieusement dégradée, peut produire des effets positifs à la fois sur les moyens d'existence des populations et sur la biodiversité », c'est ce que révèle notamment l'ouvrage. Les dernières études soulignent comment la crue artificielle dans le delta a restauré complètement l'écosystème du delta et comment ses produits assurent de nouveau les moyens d'existence des populations: les prises de poissons sont passées de moins de 1000kg en 1992 à plus de 113.000kg en 1998.

ISBN 2-8317-0750-X, 2003 240 x 165mm, viii + 88pp., photos £10 Order no. B1406

#### The Return of the Water

Restoring the Waza Logone Floodplain in Cameroon

Edited by Paul Loth

This book tells the story of times past, when wetlands were considered as wastelands and decision makers and managers were unaware of their benefits, a time when the adverse impacts of hydropower and irrigation schemes on ecosystems and people downstream seemed unimportant. Today wetland ecosystems are viewed as essential elements in integrated river basin planning, which draws upon the most appropriate modern science and traditional knowledge. This book tells of the partial restoration of the Waza Logone floodplain of Cameroon, using lessons from the floodplain's history to partially correct earlier mistakes.

ISBN 2-8317-0752-8, 2004 240 x 165mm, xv + 153pp., maps, tables, colour photos £15

Order no. B2054

#### Elaboration et mise en oeuvre d'un plan de gestion intégrée

La Réserve de biosphère du delta du Saloum, Sénégal

Ibrahima Mamadou Mat Dia

Cet ouvrage a pour objectif principal de partager l'expérience acquise lors de la préparation et de la mise en oeuvre initiale du plan de gestion intégrée de la Réserve de biosphère du delta du Saloum (RBDS). On espère qu'il servira d'exemple à tous ceux qui envisagent de préparer un plan de gestion pour quelque forme d'aire protégée que ce soit.

ISBN 2-8317-0750-1, 2003 240 x 165mm, xiv + 130pp., photos £12.50 Order no B1401

#### The Conservation and Sustainable Use of Freshwater Resources in West Asia, Central Asia and North Africa

This publication sought to bring into focus some of the many issues related to the conservation and sustainable use of freshwater resources across the WESCANA region. This publication includes six technical papers prepared by experts representing each of WESCANA's four sub-regions. It was launched at the

3rd World Conservation Congress in November 2004. Available from IUCN Regional Office for West/Central Asia and North Africa WESCANA, Residence 6, Abdel-Karim Khalil Street, Shmeisani, PO Box 942230, Amman 11194, Jordan; Tel +962 6 568 0344; Fax +962 6 568 0355; wescana@iucn.org; www.iucn.org/wescana/

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Nursery and Planting Techniques of Wetland Plants

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Approaches to Sustainable Wetland Resource Management

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Udvid Nursery: Poribeshshammato Projukti O Byabosthapana Shawhayika

[Plant Nursery: Environment-friendly Technology and Management Manual] (in Bangla)

Poverty Survey of a Critical Wetland Area: Hakaluki Haor

Scoping Exercise for Mainstreaming the Ecosystem Approach into Integrated Water Resource Management, India

Available in PDF only. http://app.iucn.org/dbtw-wpd/edocs/Rep-2004-018.pdf

Impact of Climate Change on Water and Wetland Resources in Mekong River Basin

**Directions for Preparedness and Action** 

Available in PDF only.

http://app.iucn.org/dbtw-wpd/edocs/Rep-2003-028.pdf

#### 3. Economics and Finance

#### Values and Rewards

Counting and Capturing Ecosystem Water Services for Sustainable Development

Edited by Lucy Emerton



Natural ecosystems yield a wide range of goods and services, many of which are related to either their demand for water or their role in water supplies, and most of which have an extremely high economic value.

Yet, paradoxically, water ecosystems have long been perceived by decision-makers as having little value – there are seen to be few economic benefits associated with the conservation of habitats such as wetlands or catchment forests, and few economic costs attached to their degradation and loss. Given the tendency to under-valuation, it is hardly surprising that ecosystems are being rapidly modified, converted, over-exploited and degraded in the interests of other more 'productive' land and resource management options which appear to yield much higher and more immediate profits.

Economic valuation can provide a powerful tool for placing water ecosystems on the agenda of conservation and development decision-makers. Its basic aim is to determine people's preferences: how much they are willing to pay for ecosystems goods and services, and how much better or worse off they would consider themselves to be as a result of changes in their supply. By expressing these preferences, valuation aims to make ecosystems goods and services directly comparable with other sectors of the economy when investments are appraised, activities are planned, policies are formulated, or land and resource use decisions are made.

**IUCN Water, Nature and Economics Technical Paper No. 1** 

ISBN 955-8177-43-1, 2005 297 x 210mm, 93pp., b/w photos, figures, tables

Available from the Ecosystems and Livelihoods Group Asia, IUCN Sri Lanka Country Office, 53 Horton Place, Colombo 7, Sri Lanka; Tel +94 (11) 268 2418; Fax +94 (11) 268 2470; iucn@iucnsl.org; www.iucnsl.org

#### Value

Counting Ecosystems as Water Infrastructure

Lucy Emerton and Elroy Bos

Value is a practical guide that explains the most important steps and techniques for the valuation of ecosystem services, and the incorporation of its results in decision-making. It explains, step by step, how to generate persuasive arguments for more sustainable and equitable development decisions in water resources management.

ISBN 2-8317-0720-X, 2004 250 x 190mm, 88pp., ill. £10.50 Order no. B2083

#### Valor

#### Considerar a los Ecosistemas como Infraestructura Hídrica

Lucy Emerton y Elroy Bos. Translated by José María Blanch.

Valor es una guía práctica que explica los pasos y las técnicas más importantes para la valoración de los servicios ambientales prestados por los ecosistemas y la incorporación de sus resultados en la toma de decisiones. Explica paso a paso, cómo generar argumentos persuasivos para la toma de decisiones más sustentables y equitativas en el manejo de los recursos hídricos.

ISBN 2-8317-0722-6 250 x 190mm, c. 94 pp.

Available from IUCN Regional Office for Meso-America, Moravia, Apartado Postal 01 46 2150, San José, Costa Rica; Tel +506 241 0101; Fax +506 240 9934; correo@orma.iucn.org; www.iucn.org/places/orma/

#### Payment for Water-based Environmental Services

Ecuador's Experiences, Lessons Learned and Way Forward

Consuelo Espinosa Proaño

The IUCN Water and Nature Initiative supported the development of a study in Ecuador, which aimed to identify national experiences in the creation and of implementation financial instruments mechanisms to pay for water-based environmental services. Three case studies are analysed in this report: Water Fund (FONAG) in Quito, the water fee in Cuenca and the water fund for protecting environmental services in Pimampiro. The report begins with a brief description of the state of water in Ecuador followed by an analysis of the framework in which financial mechanisms are developed. The report then presents and analyses the three cases, and presents a conclusion on the appropriateness of using payment for environmental services schemes in Ecuador, highlighting the main factors that allow their implementation.

### IUCN Water, Nature and Economics Technical Paper No. 2

ISBN 955-8177-44-X, 2005 297 x 210mm

Available from the Ecosystems and Livelihoods Group Asia, IUCN Sri Lanka Country Office, 53 Horton Place, Colombo 7, Sri Lanka; Tel +94 (11) 268 2418; Fax +94 (11) 268 2470; iucn@iucnsl.org; www.iucnsl.org

## Valuing the Role of Aquatic Resources in Livelihoods

Economic Aspects of Community Wetland Management in Stoeng Treng Ramsar Site, Cambodia

Joanne Chong

Wetlands are vital to the livelihoods of hundred of millions of people residing in the Lower Mekong region, and particularly to the food security of many of the rural poor. This document reports on a study whose aim was to provide guidance on the use of environmental economic assessment methodologies to support wetlands management for poverty alleviation. Village-level economic valuation techniques were employed to conduct livelihoods assessments in Veun Sean, one village within the Stoeng Treng Ramsar site, in order to draw more general conclusions about wetland resource use and management. The study extended beyond quantitative assessment to explore the context in which resource-use decisions are made – and the linkages between poverty and the importance of wetland resources.

### IUCN Water, Nature and Economics Technical Paper No. 3

ISBN 955-8177-45-8, 2005 297 x 210mm, 59pp., maps, illustrations

Available from the Ecosystems and Livelihoods Group Asia, IUCN Sri Lanka Country Office, 53 Horton Place, Colombo 7, Sri Lanka; Tel +94 (11) 268 2418; Fax +94 (11) 268 2470; iucn@iucnsl.org; www.iucnsl.org

## Financial Incentives for Ecosystem Conservation

A Review of the Developments of Markets for Environmental Services in Sri Lanka

Mikkel F. Kallesoe and Diana de Alwis

Sri Lanka holds great potential for developing payment for environmental services (PES) and environmental service markets. However, this is a relatively new concept, and improving awareness and building institutional capacity remain a top priority and challenge. This study provides a situation analysis of previous and ongoing projects and initiatives related to PES and environmental service markets, and identifies challenges, constraints and opportunities for future PES projects in Sri Lanka. The study focused primarily on markets associated with the provision of the following environmental services: watershed protection and erosion control; biodiversity conservation (including those associated with eco-tourism and medicinal plants); carbon sequestration; and green agriculture and production

### IUCN Water, Nature and Economics Technical Paper No. 4

ISBN 955-8177-46-6, 2005 297 x 210mm

Available from the Ecosystems and Livelihoods Group Asia, IUCN Sri Lanka Country Office, 53 Horton Place, Colombo 7, Sri Lanka; Tel +94 (11) 268 2418; Fax +94 (11) 268 2470; iucn@iucnsl.org; www.iucnsl.org

## Balancing the Returns to Catchment Management

The Economic Value of Conserving Natural Forests in Sekong, Lao PDR

Rina Maria P. Rosales, Mikkel F. Kallesoe, Pauline Gerrard, Phokhin Muangchanh, Sombounmy Phomtavong and Somphao Khamsomphou

The socio-economic development plan for Sekong mentions increasing forest cover as one of its major objectives. Determining the contribution of natural regeneration forests to overall socio-economic development necessitates information on the benefits and costs of undertaking this management option. To this end, IUCN and WWF jointly undertook a valuation study looking at the economic value of maintaining natural regeneration forests. Mainly through numerical estimates, the valuation assessed the direct and indirect use values derived by various users and beneficiaries of the forest, and included: NTFP harvesting; the financial returns to the provincial government from timber harvesting; watershed protection; biodiversity conservation; and carbon sequestration.

### IUCN Water, Nature and Economics Technical Paper No. 5

ISBN 955-8177-47-4, 2005 297 x 210mm

Available from the Ecosystems and Livelihoods Group Asia, IUCN Sri Lanka Country Office, 53 Horton Place, Colombo 7, Sri Lanka; Tel +94 (11) 268 2418; Fax +94 (11) 268 2470; iucn@iucnsl.org; www.iucnsl.org

## The Value of Traditional Water Schemes

Small Tanks in the Kala Oya Basin, Sri Lanka

Shamen Vidanage, Sudarshana Perera and Mikkel F. Kallesoe

Sri Lanka has one of the oldest traditions of irrigation in the world. The economy and human settlements of early Sri Lankan society were organized around ancient tank (water storage reservoir) irrigation systems. These traditional tank systems thus form a vital component of both the natural and manmade landscape in Sri Lanka. This study of the Kala Oya Basin, carried out collaboratively by the IUCN Sri Lanka Country Office and the Mahaweli Authority of Sri Lanka, quantifies the benefits associated with tank goods and services, and underlines their high economic and livelihood value to local communities. It also looks at the economic returns to different options for restoring and maintaining the traditional tank The concludes system. study by making recommendations about economic and financial instruments to strengthen tank management.

### IUCN Water, Nature and Economics Technical Paper No. 6

ISBN 955-8177-50-4, 2005 297 x 210mm

Available from the Ecosystems and Livelihoods Group Asia, IUCN Sri Lanka Country Office, 53 Horton Place, Colombo 7, Sri Lanka; Tel +94 (11) 268 2418; Fax +94 (11) 268 2470; iucn@iucnsl.org; www.iucnsl.org

## Catchment Ecosystems and Downstream Water

The Value of Water Resources in the Pangani Basin, Tanzania

Jane K. Turpie, Yonika M. Ngaga & Francis K. Karanja

With increasing demands on the water of the Pangani River Basin, coupled with a decreasing catchment runoff due to climate change, water resources are becoming increasingly scarce, and leading to conflicts among users. The objectives of the study described here were to provide first-cut estimates of the value of water in different uses, as well as to review various issues and economic tools pertaining to water resource allocation and financing mechanisms for Integrated River Basin Management. The application of economic tools to water resource management issues in the Pangani River Basin is considered to be an important step towards resolving water user conflicts and water allocation management improving and processes.

### IUCN Water, Nature and Economics Technical Paper No. 7

ISBN 955-8177-49-0, 2005 297 x 210mm

Available from the Ecosystems and Livelihoods Group Asia, IUCN Sri Lanka Country Office, 53 Horton Place, Colombo 7, Sri Lanka; Tel +94 (11) 268 2418; Fax +94 (11) 268 2470; iucn@iucnsl.org; www.iucnsl.org

## Assessment of the Economic Value of Muthurajawela Wetland

Lucy Emerton and L. D. C. B. Kekulandala



The Muthurajawela Marsh is part of an integrated coastal wetland system of high biodiversity and ecological significance. Yet it is subject to intense and growing pressures from urban, residential, recreational and industrial development. The short-term economic gains that have influenced land and resource use decisions have neglected to take into consideration the economic value of wetland goods and services. Number 4 in the series of Occasional Papers of IUCN Sri Lanka, this publication attempts to contribute to an understanding of the economic benefits of wetland conservation and the economic costs of wetland degradation and loss in Muthurajawela.

#### Occasional Papers of IUCN Sri Lanka No. 4

ISBN 955-8177-19-9, 2003 297 x 210mm, iii + 28pp.

Available from the IUCN Sri Lanka Country Office; 53 Horton Place, Colombo 7, Sri Lanka; Tel +94 (11) 268 2418; Fax +94 (11) 268 2470; iucn@iucnsl.org; www.iucnsl.org

#### Forthcoming...

#### Pay

A Practitioners' Guide for Financing Ecosystem Services for Water

This guide aims to provide practical tools to non specialists – essentially water resources planners, river basin managers, non-governmental organizations and private sector operators.

It will link the most recent practice on payments for hydrological services to current discourse on integrated water resources management and look into the different aspects to consider when exploring the potential feasibility of establishing reward or payments for ecosystem services related to water security. *Pay* demystifies concepts and jargon, and through a series of tools, case studies and stories from around the world, describes pitfalls to avoid and provides hints to fill gaps in knowledge. It is based on a demand-driven approach, linking text, tools and illustrations to key questions emerging from current and potential practitioners.

#### Multiple Benefits of Small Irrigation Tanks and their Economic Value

A Case Study in the Kala Oya Basin, Sri Lanka

H. D. B. S. Perera et al.

The ancient tank system supported people's livelihoods in times of foreign invasions. These livelihoods were environment friendly, and had the capacity to feed many a generation who constructed them. Today, many rural people still use these tanks for irrigation and other purposes. IUCN Sri Lanka Country Office implemented a project on integrating wetland ecosystem values into river basin management in collaboration with the Mahaweli Authority of Sri Lanka. The project aimed to demonstrate this methodology in the Kala Oya basin, as a pilot demonstration site. The study also set out to demonstrate the feasibility of managing small irrigation tank systems for biodiversity and ecosystem conservation, and achieving livelihood and poverty alleviation goals. This paper focuses mainly on the direct and indirect services provided by the small tank ecosystems and possible techniques for valuing those which can be utilized in decision making regarding water and resource allocation.

#### Occasional Papers of IUCN Sri Lanka No. 7

ISBN 955-8177-37-7, 2005 295 x 210mm, iv + 34pp. ill., maps

Available from the IUCN Sri Lanka Country Office, 53 Horton Place, Colombo 7, Sri Lanka; Tel +94 (11) 268 2418; Fax +94 (11) 268 2470; iucn@iucnsl.org; www.iucnsl.org

#### Also available...

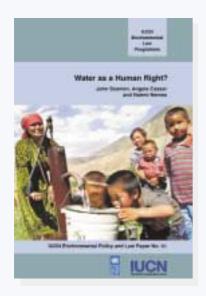
#### Utilisation of Environment Fund in the Community Based Haor and Floodplain Resource Management Projects

Available in hard copy from: The Publications Officer, IUCN Bangladesh Country Office, House 11, Road 138, Gulshan 1, Dhaka 1212, Bangladesh; Tel +880 (2) 989 0395; Fax +880 (2) 989 2854; asd@iucnbd.org

### 4. Governance and Empowerment

#### Water as a Human Right?

John Scanlon, Angela Cassar and Noémi Nemes



Formally acknowledging water as a human right could encourage the international community and governments to enhance their efforts to satisfy basic human needs and to meet the Millennium Development Goals. But critical questions arise in relation to a right to water. What would be the benefits and content of such a right? What mechanisms would be required for its effective implementation? Should the duty be placed on governments alone, or should the responsibility also be borne by private actors? Is another 'academic debate' on this subject warranted when action is really what is necessary?

Without claiming to prescribe the answers, this publication clearly and carefully sets out the competing arguments and the challenges. "In doing so it has provided an excellent platform for critical thinking and informed debate." said Achim Steiner, IUCN Director General.

#### **IUCN Environmental Policy and Law Paper No. 51**

ISBN 2-8317-0785-4, 2004 240 x 165mm, ix + 53pp. £8.50

Order no. B2060

Available in the United States and Canada from Island Press.

## International Water Governance

Conservation of Freshwater Ecosystems Volume I. International Agreements: Compilation and Analysis

Edited by Alejandro Iza

This publication provides an analysis of the most relevant provisions on freshwater ecosystems conservation, present in international treaties, and bilateral and multilateral agreements relating to rivers and lakes. It also includes an analysis of relevant European Union legislation.

IUCN Environmental Policy and Law Paper No. 55 ISBN 2-8317-0815-X, 2004 295 x 210mm, xiii + 324pp.

£20

Order no. B2074

Available in the United States and Canada from Island Press.

## Water Governance in West Africa

Legal and Institutional Aspects
La gouvernance de l'eau en Afrique de
l'Ouest : aspects juridiques et institutionnels

Edited by Madiodio Niasse, Alejandro Iza, Amidou Garane and Olli Varis

This publication contains contributions to the workshop "Water Governance: Legal and Institutional Aspects of Natural Resources Management in West Africa", organized by BRAO and ELC in Ouagadougou (Burkina Faso), in 2002 to improve the understanding of the dialectic between water-related infrastructures and institutional frameworks in West Africa. The book contains papers addressing a multiplicity of issues on water governance: water, wetlands and international environmental agreements; legal aspects transboundary water resources; water resources management at the local level: customary and modern institutions; Integrated Water Resources Management (IWRM), environment, economy, and equity in national water policies; and river basin organizations in West Africa.

#### **IUCN Environmental Policy and Law Paper No. 50**

ISBN 2-8317-0790-0, 2004 295 x 210mm, xxiv + 247pp. £14

Order no. B2079

#### Análisis de Actores de la Región Hidrográfica Cara Sucia-San Pedro Belén, Ahuachapán, El Salvador

Proyecto: Manejo Integrado de Cuencas Asociadas al Complejo Hidrográfico Barra de Santiago-El Imposible (BASIM). Ahuachapán, El Salvador

En este trabajo se presentan a los actores con intereses en los recursos hídricos, el uso y las presiones a que se someten a los mismos. Las razones de los conflictos sobre los recursos hídricos y las características de las organizaciones son analizadas con el fin de entender posibles formas de fortalecer las capacidades de negociación entre los usuarios del agua y el manejo de los recursos hídricos.

ISBN 9968-743-95-X, 2004 280 x 205 mm, 69pp.

Available from IUCN Regional Office for Meso-America, Moravia, Apartado Postal 01 46 2150, San José, Costa Rica; Tel +506 241 0101; Fax +506 240 9934; correo@orma.iucn.org; www.iucn.org/places/orma/

#### Also available...

#### Discourse, Legislative Framework and Practice on Integrated Water Resource Management in Bhutan

Available in PDF format only. http://app.iucn.org/dbtw-wpd/edocs/Rep-2004-019.pdf

## Comprehensive Options Assessment for Electricity Sector in Nepal

Available in PDF format only. http://app.iucn.org/dbtw-wpd/edocs/2005-051.pdf

#### Gaining Public Acceptance

Available in hard copy from:

Asia and Wetlands Programme, IUCN Regional Office for Asia, 63 Sukhumvit 39 Soi Phrompong, Sukhumvit Road, Wattana, Klongtan, Bangkok 10110, Thailand; Tel +66 (2) 662 4029; Fax +66 (2) 662 4388; iucn@iucnt.org; www.iucn.org/places/asia

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Participatory Land-use Survey of Pagnar and Sanuar-Dakuar Haors

Awareness Raising in Sustainable Haor Resource Management

Awareness Raising in Sustainable Floodplain Resource Management

#### Forthcoming...

#### Gobernabilidad del Agua en América del Sur (Water Governance in South America)

Edited by Alejandro Iza and Marta Rovere

Este libro analiza el marco jurídico e institucional de los recursos hídricos en determinados países de América del Sur. El tratamiento de temas clásicos como la asignación de agua para diferentes usos y la prevención y control de la contaminación es complementado por la consideración de cuestiones relativas a la conservación tales como caudales ecológicos, conservación de las aguas subterráneas y derechos tradicionales y ancestrales. Los diferentes capítulos presentan los casos de Argentina, Bolivia, Brasil, Colombia, Chile, Ecuador, Paraguay, Perú, Uruguay y Venezuela.

#### UICN Serie de Política y Derecho Ambiental No 53

This book brings to light the status of the legal and institutional frameworks relating to water resources in selected countries of South America. It explores not only the traditional issues, such as water allocation, and pollution prevention and control, but also conservation of the resource, environmental flows, groundwater conservation, and traditional and customary rights. The different chapters present the cases of Argentina, Bolivia, Brazil, Colombia, Chile, Ecuador, Paraguay, Peru, Uruguay, and Venezuela.

#### **IUCN Environmental Policy and Law Paper No. 53**

#### Negotiate

### Overcoming Power Differences in Water Management Negotiations

This guide aims to provide practical tools for government officials, NGOs and local communities to create platforms for negotiations that are balanced and open, in order to arrive at collaborative action to improve water resources management.

The book will contain a brief overview of theory in this field, followed by practical tools and steps to change power relations. It describes how to analyse the issues and political play involved, convince colleagues and stakeholders, set up campaigns and advocacy, set in place participatory methods, enter negotiations, and move towards a multi-stakeholder platform for action.

#### Rule

#### Sustainable Water Rules

The goal of this book is to contribute to "greening" water governance; in other words, to provide for the incorporation of environmental considerations into water policies, laws and institutions.

RULE will be a user friendly guide, with a sufficient level of generality so it can be used by non lawyers, explaining in a clear way the legal and institutional arrangements in the water sector, and offering guidance to the managers and decision makers to confront critical governance issues. *Rule* will provide the instruments to trial and test the water laws and policies at the national and sub-national levels, and the tools to update them, when necessary.

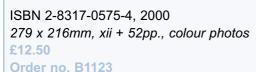
### 5. Water Policy

#### Vision for Water and Nature

World Strategy for Conservation and Sustainable Management of Water Resources in the 21st Century

The Vision for Water and Nature is the 'environment and ecosystems' component of the World Water Vision exercise of the World Water Council. It represents the first meaningful attempt to fully integrate environmental issues into the development of a comprehensive strategy for water resource management at the global level.

The vision was developed by IUCN through an extensive consultation effort based on three thematic Workshops on freshwater ecosystem management and social, economic and environmental security, respectively. Instead of considering the environment as one of many water management sub-sectors, IUCN's consultations led it to emphasise the crucial role of ecosystems as the basis of our life support systems, without which security cannot be achieved and sustained. The Vision also proposes a Plan of Action to help us achieve the sustainable world we envision in 2025.



Available in the United States and Canada from Island Press.



#### Vision de l'eau et de la nature

Stratégie mondiale de conservation et de gestion durable des ressources en eau au 21e siècle

ISBN 2-8317-0576-2, 2000 279 x 216mm, xii + 52pp., colour photos £12.50 Order no. B1125

## Visión del Agua y de la Naturaleza

Estrategia Mundial para la Conservación y Manejo Sostenible de Recursos Hídricos en el Siglo XXI

ISBN 2-8317-0577-0, 2000 279 x 216mm, xii + 52pp., colour photos £12.50 Order no. B1124

#### Vision for Water and Nature

World Strategy for Conservation and Sustainable Management of Water Resources in the 21st Century – Compilation of All Project Documents

This compilation contains all key documents produced during the development of the Vision for Water and Nature, the environment and ecosystems component of the Vision for Water, Life and the Environment for the 21st Century, generally known as the World Water Vision. Included are: the Vision itself, the Discussion Papers which served as the basis of each Workshop and the Workshop reports.

ISBN 2-8317-0517-7, 2000 279 x 216mm, vii + 223pp., b/w drawings, graphs £18 Order no. B546

#### Let it Reign

The New Water Paradigm for Global Food Security

SIWI, IFPRI, IUCN, IWMI

For the 13th meeting of the Commission on Sustainable Development (CSD-13), the Swedish International Development Cooperation Agency (Sida) commissioned the Stockholm International Water Institute (SIWI) to produce this report. The report presents recommendations for policy and decision makers with regard to sustainable food production, sustainable food consumption and ecological sustainability. The topic addressed in this report is an issue identified as being of very high priority for Sida. Collaborating partners for the report were the International Food Policy Research Institute (IFPRI), IUCN and the International Water Management Institute (IWMI).

2005

295 x 210mm, 39pp., tables, colour photos

Available from the Stockholm International Water Institute (SIWI), Hantverkargatan 5, 112 21 Stockholm, Sweden; siwi@siwi.org; www.siwi.org

#### Vers une gestion durable des plaines d'inondation sahéliennes

Groupe d'Experts sur les Plaines d'Inondation Sahéliennes (GEPIS)

Les plaines d'inondation des grands fleuves de la zone sahélienne d'Afrique de l'Ouest sont des écosystèmes humides dotés d'une productivité exceptionnelle comparée à celle des habitats arides et semi-arides environnants. Une gestion rationnelle de ces plaines est essentielle si l'on veut que ces écosystèmes importants puissent continuer à fonctionner à l'avenir.

Les lignes directrices proposées dans cette publication cherchent à coordonner et soutenir les politiques et réglementations actuelles et futures concernant la conservation des zones humides, de la faune et de la flore. Elles sont destinées à servir de cadre dans lequel les questions spécifiques à chaque bassin fluvial et aux plaines d'inondation y afférentes pourront être traitées.

ISBN 2-8317-0494-4, 2000 297 x 210mm, xii + 214pp., b/w photos, maps, drawings £14.50 Order no. B514

## Wetlands, Ecology and Priorities for Conservation in Zimbabwe

Proceedings of a Seminar on Wetlands in Zimbabwe, 13–15 January 1992

Edited by T. Matiza and S. A Crafter

Zimbabwe's wetlands are small, diverse and unique in nature but, until recently, in planning and development, the components of these ecosystems have been treated as separate entities. These 18 papers highlight most forcefully the problems and issues.

ISBN 2-8317-0202-X, 1994 240 x 165mm, 170pp., tables, maps, figures £13.50 Order no. B770

## Integrated Wetlands and Water Resources Management

Proceedings of a Workshop held at the 2nd International Conference on Wetlands and Development (November 1998, Dakar, Senegal)

Edited by Ger Bergkamp, Jean-Yves Pirot and Silvia Hostettler

In 1998, the 2nd International Conference on Wetlands and Development was organized in Dakar, Senegal to review progress in wetland conservation and development. The proceedings of the workshop "Integrated Wetlands and Water Resources Management" are presented here. This workshop examined local, national and regional experiences with integrated management of wetlands and water resources in Africa. The aim was to define the needs, potential, policies and future strategies to avert further degradation of freshwater ecosystems. Individual papers were prepared by the workshop participants which included policy makers, managers and scientists from both developed and developing countries. The need for further integration and empowerment of people from developing countries is emphasised in the recommendations put forward.

For each paper abstracts in English and French are provided.

Published by Wetlands International and IUCN ISBN 90-5882-005-X, 2000 297 x 210mm, x +116 pp., figures, tables, maps

Available from Natural History Book Service Ltd., 2-3 Wills Road, Totnes, Devon TQ9 5XN, UK; Tel +44 1803 865 913; Fax +44 1803 865 280; sales@nhbs.co.uk; www.nhbs.co.uk

#### 6. Assessments and Inventories

#### 6.1 Situation Analysis

#### Pangani Basin A Situation Analysis

IUCN Eastern Africa Programme



The Pangani River Basin covers an area of about 43,650 km², mostly in Tanzania with approximately 5% in Kenya. The Basin contains a wide array of resources of which water and arable land are arguably the most important to its 3.7 million Tanzanian inhabitants. There is a diversity of interests in the Basin, and these are able to wield various degrees of power as they seek to lay claim to its resources. These differences in power underlie the many conflicts that characterize natural resource exploitation within the Basin. This situation analysis describes the current status of the basin's resources, its users and their many challenges.

ISBN 2-8317-0760-9, 2003 250 x 190mm, xvi + 104pp. £7.50

Order no. B2048

Available from IUCN Regional Office for Eastern Africa, Wasaa Conservation Centre, Mukoma Road (off Magadi Road), City Square, PO Box 68200, Nairobi 00200, Kenya; Tel +254 (20) 890 605/06/07; Fax +254 (20) 890 615;mail@iucnearo.org; www.iucn.org/places/earo/

El Estado de los Recursos Hídricos en la Región Hidrográfica Cara Sucia-San Pedro Belén en la Zona Sur de Ahuachapán, El Salvador (Recopilación Y Análisis)

Proyecto: "Manejo Integrado de Cuencas Asociadas al Complejo Hidrográfico Barra de Santiago-El Imposible" (BASIM). Ahuachapán, El Salvador

El Proyecto BASIM-UICN presenta una breve recopilación de las principales características físicas y ambientales que posee la región hidrográfica Cara Sucia-San Pedro Belén, también denominada en El Salvador "región C".

Las redes hidrográficas de Apaneca-Tacuba, sus municipios, la cordillera o cadena costera, las llanuras, esteros y manglares, así como su ordenamiento en cinco conjuntos de cuencas y el uso de los recursos hídricos, son descritos. Especial mención se hace de las iniciativas participativas existentes que trabajan en la gestión del agua.

ISBN 9968-743-94-1 280 x 205mm, 62pp.

Available from IUCN Regional Office for Meso-America, Moravia, Apartado Postal 01 46 2150, San José, Costa Rica; Tel +506 241 0101; Fax +506 240 9934; correo@orma.iucn.org; www.iucn.org/places/orma/

# The IUCN Review of the Southern Okavango Integrated Water Development Project

The review, conducted at the request of the Botswana Government, offers an alternative for the Okavango planning region which includes a multisectoral approach, designation of the Okavango as a pilot area for more decentralized planning, and increased involvement of national and district governmental, nongovernmental, donor and private sector organizations.

ISBN 2-8317-0114-7, 1993

240 x 165mm, xxxiii + 543pp., tables, figures, colour plates

£13.50

Order no. B1020

#### 6.2 Inventories

#### Watersheds of the World CD

Carmen Revenga, Janet Nackoney, Eriko Hoshino, Yumiko Kura and Jon Maidens



This CD provides maps of land cover, population density and biodiversity for 154 basins and sub-basins around the world. It lists indicators and variables for each of these basins and, where appropriate, provides links and references to relevant information. It further contains 20 global maps portraying relevant water resources issues. There are coloured buttons that function as a menu to select individual basins by continent. Each continental menu provides access to interactive maps and lists of basins per continent through which you can access individual basin profiles. There is also a button for the global indicator maps. All basin profiles and global maps can also be downloaded as PDFs.

Published by IUCN, IWMI, Ramsar Convention Bureau and WRI ISBN 1-56973-548-8, 2003

£85

Order no. B2011

## An Inventory of Brazilian Wetlands

Edited by Antonio Carlos S. Diegues with contributions from NUPAUB – Centre for Research on Human Population and Wetlands in Brazil

The first overall study of wetlands in Brazil, this inventory provides data for assessment of the ecological and economic value of these areas. Intended for researchers, students, professionals and environmentalists as well as social groups interested in the preservation, conservation and sustainable use of wetlands.

ISBN 2-8317-0217-8, 1994 240 x 165mm, viii + 216pp., b/w maps £15 Order no. B57

#### Wetlands of Ethiopia

Proceedings of a seminar on the resources and status of Ethiopia's wetlands

Edited by Yilma D. Abebe and Kim Geheb

Wetlands cover an estimated 1.14% of the total land area of Ethiopia and play a vital role in the country's economy and water management. This publication identifies the main wetlands of Ethiopia, assesses the state of their management and describes relevant policies. It also looks forward to the challenges for their management and how these can be met. The book identifies a total of 73 wetlands, distributed over all the five main wetland types.

ISBN 2-8317-0689-0, 2003 240 x 165mm, vi + 116pp., maps £7.50 Order no. B2046

#### Wetlands of Kenya

Edited by S. A. Crafter, S. G. Njuguna and G. W. Howard

A source book for future research and management activities, these 20 papers cover wetland issues in Kenya and underline the need for a national wetland programme.

ISBN 2-8317-0127-9, 1992 240 x 165mm, 183pp., tables, maps, figures £13.50 Order no. B756

#### Wetlands of Tanzania

Proceedings of a Seminar on the Wetlands of Tanzania, 27–29 November 1991

Edited by G. L. Kamukala and S. A. Crafter

These 16 papers and final recommendations provide up-to-date information and offer guidance on future wetlands development options.

ISBN 2-8317-0185-6, 1993 240 x 165mm, 170pp., tables, maps, figures £13.50 Order no. B758

#### 6.3 Biodiversity Assessments

## The Status and Distribution of Freshwater Biodiversity in Eastern Africa

Will Darwall, K. Smith, T. Lowe and Jean-Christophe Vié

ISBN 2-8317-0863-X, 2005 280 x 215mm, viii + 36pp., ill., maps + 2 CD-ROMs



http://app.iucn.org/dbtw-wpd/edocs/SSC-OP-031.pdf

# An Assessment of the Status of Biodiversity in the Maduganga Mangrove Estuary

C. N. B. Bambaradeniya et al.

The Maduganga estuary and mangrove islets are a complex coastal wetland ecosystem situated in the southern part of Sri Lanka. Currently not a protected area, Maduganga has been recognised as a priority wetland for conservation because of its rich biodiversity. This publication reports the findings of a systematic assessment by IUCN Sri Lanka of the area's biodiversity, and provides scientific knowledge in a simplified manner to facilitate future initiatives to conserve this valuable coastal wetland ecosystem.

Occasional Papers of IUCN Sri Lanka No. 1 ISBN 955-8177-15-6, 2001 295 x 210mm, 49pp.

Available from the IUCN Sri Lanka Country Office, 53 Horton Place, Colombo 7, Sri Lanka; Tel +94 (11) 268 2418; Fax +94 (11) 268 2470; iucn@iucnsl.org; www.iucnsl.org

## A Biodiversity Status Profile of Bundala National Park

A Ramsar National Wetland of Sri Lanka

C. N. B. Bambaradeniya et al.

Sri Lanka's first Ramsar wetland, the Bundala National Park is located in the southeastern Arid Zone of Sri Lanka. It consists mainly of dry thorny scrubland and shallow water lagoons, which form a complex wetland system harbouring a rich bird life, including several species of migratory waterfowl. At present, the biodiversity of the park is facing several threats, among them habitat deterioration and degradation, direct exploitation of species, spread of invasive alien species, prolonged drought, and inadequately planned land-use practices. This survey, carried out from February to May 2001, was intended to document the present status of biodiversity in this globally important protected area, and subsequently contribute to its conservation and management.

#### Occasional Papers of IUCN Sri Lanka No. 2

ISBN 955-8177-16-4, 2005 295 x 210mm, iii + 37pp. ill., map

Available from the IUCN Sri Lanka Country Office, 53 Horton Place, Colombo 7, Sri Lanka; Tel +94 (11) 268 2418; Fax +94 (11) 268 2470; iucn@iucnsl.org; www.iucnsl.org

# An Assessment of the Status of Biodiversity in the Muthurajawela Wetland Sanctuary

C. N. B. Bambaradeniya et al.

Located on the west coast of Sri Lanka, Muthurajawela is the largest coastal peat bog of the island. At present, the biodiversity of Muthurajawela is threatened by unplanned development activities and a growing human population. Therefore, IUCN Sri Lanka undertook a systematic survey to document the present status of biodiversity in this coastal wetland, for the purpose of safeguarding the ecological functions, resources and values of the Muthurajawela Wetland Sanctuary. This paper intends to highlight the biodiversity values of Muthurajawela, and provide scientific knowledge in a simplified manner to facilitate future initiatives to conserve this valuable coastal wetland ecosystem.

#### Occasional Papers of IUCN Sri Lanka No. 3

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#### A Biodiversity Status Profile of Sub-Tidal and Inter-Tidal Habitats of the Rekawa, Ussangoda and Kalametiya Area

E. N. R. Perera and P. Weerakkody

Being an island, Sri Lanka is rich in coastal and marine habitats. Sub-tidal habitats such as coral and rocky reefs are abundant, along with large soft bottom habitats. In addition, inter-tidal and coastal habitats are an important part of the marine ecosystem and provide shelter for a large number of plant and animal species. The coastline along the Rekewa, Ussangoda and Kalametiyah area is particularly rich in both animal and plant diversity, of both national and international importance. However, increasing population, poverty, over-fishing, shell mining, coral mining and overgrazing by livestock are creating serious threats to both aquatic and terrestrial ecosystems. IUCN Sri Lanka conducted an assessment of the biodiversity of the inland and sub-tidal ecosystems within the RUK area as part of a project supported by the Global Environment Facility

(GEF) of the UNDP to conserve the biodiversity of this globally significant area.

#### Occasional Papers of IUCN Sri Lanka No. 5

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## A Biodiversity Status Profile of Lunama, Kalametiya Wetland Sanctuary

S. P. Ekanayake, et al.

The Lunama and Kalametiya lagoons are located on the southeastern coast of Sri Lanka. Part of the Dry Zone of the country, their importance led to their being designated in 1984 as a Sanctuary under the Fauna and Flora Protection Ordinance. The objective of this study was to compile a comprehensive set of baseline data on biodiversity in the Lunama-Kalametiya wetland system in order to facilitate management of this protected area. Data is provided on major habitat types and flora, the species composition of fauna, threats to biodiversity, and recommendations for the conservation of biodiversity in this region.

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