The Flood Green Guide (FGG) is dedicated to the resilient spirit of people around the globe working to survive and thrive in a world at risk. We hope that this guide, and the services provided by nature, will inspire and support those efforts.
NATURAL AND NATURE-BASED FLOOD MANAGEMENT: A GREEN GUIDE
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Multiple and varied factors contribute to the global increase in flooding. These include meteorological factors such as rainfall, storms and changing temperatures; hydrological factors such as soil moisture and groundwater levels; and societal factors such as changes in land use and occupation of floodplains. Floods in urban areas are an increasing concern as cities and towns expand rapidly, many along coastlines, where sea level rise and sinking land (or subsidence) compound risk.

Over the years, as flood risk has grown, the nature of that risk has changed. For example, although scientists cannot with certainty attribute a specific flood to climate change, they do know climate change contributes to extreme weather events. At the same time, policy-makers and practitioners have adopted a gradual but continual shift in policy and practice from flood control to flood risk management. The reason for this shift is that evidence confirms a narrow application of traditional engineering to control floods is not sufficient and is no longer appropriate as the sole approach to managing floods. Federal government policy requires all federal investments that affect floodplains to meet higher flood risk management standards and help conserve the natural values of floodplains. This policy establishes a new standard for flood risk reduction that reduces the risk and cost of future flood disasters, building on existing policy that “requires executive departments and agencies (agencies) to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative.”

Current better management practices for floods call for a holistic and integrated approach that engages multiple disciplines and experiences. Such an approach will build resilience and reduce vulnerability for both people and the environment. These improved practices also help planners understand and manage flood risk.

World Wildlife Fund (WWF), in partnership with the US Agency for International Development Office of US Foreign Disaster Assistance (OFDA), has developed the Natural and Nature-Based Flood Management: A Green Guide (Flood Green Guide) to support communities at a local level in using natural and nature-based methods for flood risk management. An interdisciplinary global team developed the Flood Green Guide with a specific focus on advancing the development and application of natural and nature-based methods for managing flood risk.

The Flood Green Guide is based on collective experience, review and analysis of current and emerging flood management better practices, and on consultation with experts in engineering, water resource management, urban planning and policy, climate change, and community engagement and development. To develop the

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approach and content of the Flood Green Guide, the writing team also consulted with representatives from various communities in Asia and Latin America.

The Flood Green Guide draws from and complements existing resources and literature, and is based on the integrated flood management (IFM) approach, which recognizes that sometimes flooding is a natural and beneficial process. The Flood Green Guide is designed to maximize the benefits of floodwaters while offering guidance on managing and minimizing floods using natural and nature-based methods. We believe these methods are an important part of an integrated and strategic approach to flood risk management. As the Flood Green Guide is focused primarily on flood management methods, the guide is not designed to address every element of flood risk management. Additional resources are available to learn more about flood risk management.2

The guide is designed for those responsible for flood risk management, including municipal governments, community groups, and nongovernmental organizations (NGOs). The Flood Green Guide provides this audience with practical guidance and tools to understand the local context related to flood risk. At the same time, the Flood Green Guide describes a number of flood management methods that can be used in various combinations. Several case studies illustrate many of the issues and challenges related to flood risk management and how communities around the world are adapting and developing their own flood management methods. Every situation and community is different; the guide user will need to adapt the methods as appropriate for the local context and specific flood risk management objectives and acquire technical support as may be required.

The Flood Green Guide will be supported by a training program, and a website – www.envirodm.org – with a resource library containing additional information on innovative practices, case studies, and learning opportunities.

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ACKNOWLEDGMENTS

Project Manager
Anita van Breda, World Wildlife Fund

Creative Director / Graphic Designer
Melissa Carstensen, QueenBee Studio

Editors
Heather Benit
Martha Thomas

Illustrator
Greg Maxson

Research and Writing Team
Dr. Masood Arshad, WWF-Pakistan
Nadia Bood, World Wildlife Fund Belize
Oscar Guevara, WWF-Colombia
Dr. Missaka Hettiarachchi, WWF Fellow
Nausheen Iqbal, World Wildlife Fund
Charles Kelly, ProAct
Ibrahim Khan, WWF-Pakistan
Lauren Kovach, World Wildlife Fund
Linh Nguyen, World Wildlife Fund
Schuyler Olsson, World Wildlife Fund
Didier Pedreros, WWF-Colombia
Jennifer Pepson Elwood, World Wildlife Fund
Ed Tongson, WWF-Philippines
Anita van Breda, World Wildlife Fund
Dr. Bart Wickel, Stockholm Environment Institute

Advisory Group
Ada Benavides, U.S. Army Corps of Engineers
Dr. Wolfgang Eric Grabs, World Meteorological Organization
Karin M. Krchnak, World Wildlife Fund
Jonathan Randall, DAI
Steve Stockton, U.S. Army Corps of Engineers
Dr. Ayse Sezin Tokar, U.S. Agency for International Development

Consultations
Europe:
Associated Programme on Flood Management – World Meteorological Organization
Regina Junio, WWF-US Education for Nature Fellow
Dr. Bruce Lankford, University of East Anglia, UK
Homero Paltán, University of Oxford
Paul Sayers, Sayers and Partners and Associate Advisor WWF-UK

Colombia:
Luis Gerardo Camargo, DRR Officer – Usme Borough (Bogota)
Humberto Gonzáles Marentes, Consultant in Hydrology and Meteorology
Lina María Hernández, IDIGER – Bogota
Office for DRR and Climate Change
Darío Londoño Gómez, Professor and Consultant
Diana A. Paredes, DRR Officer – Usme Borough (Bogota)
Belize:
John Augustine, Vice Chairman of Seine Bight Village
Sandy Beach, Sandy Beach Real Estate
Lily Bowman, Belize Red Cross Society
Jacinto Casimiro, Helpage Secretary
Wayne Casimiro, Hopkins Village Council
Victor Castillo Jr., National Emergency Management Organization
Climate Change Office of Belmopan, Belize
Rudolph Coleman, Helpage
Petrona Coy, Southern Environmental Association
Keith Emmanuel, National Emergency Management Organization
Shelton DeFour, National Emergency Management Organization
Walter Garbutt, Southern Environmental Association
Nicole Gomez, Southern Environmental Association
Dennis GONGuez, National Meteorological Service of Belize
Ann Gordon, Belize National Climate Change Office
Hopkins Village, Stann Creek District, Community Members
Frederick Hunter, Belize Red Cross Society
Charlie Leslie Jr., Former Village Council Leader, Placencia
Clyde Martinez, Teacher
Uwahnine Martinez, Palmento Grove
Ashford Miranda, Hopkins Village Council
Felix Miranda, Garifuna Fabrics
Arreini Palacio, Southern Environmental Association
Hilario Ramos, Hopkins Village Council
Samir Rosado, Coastal Zone Management Authority
Seine Bight Village, Community Members
Florencio Shal, Driver
Wayne Usher, City Emergency Management Organization
Safira Vasquez, Belize National Climate Change Office
Monique Vernon, Southern Environmental Association
Tennielle Williams, Principal Hydrologist
Michalyn Young, Southern Environmental Association

Sri Lanka:
P. Hettiarachchi, Irrigation Department of Sri Lanka
Sunil Jayaweera, Disaster Management Centre of Sri Lanka
Chandana Kalupahana, Urban Development Authority of Sri Lanka
Badra Kamaladasa, Sri Lanka Water Partnership
Ranjith Rathnayake, Sri Lanka Water Partnership
S. Soyza, Sri Lanka Land Reclamation and Development Corporation
Dr. Kithisiri Weligepola, Irrigation Department of Sri Lanka
Dr. Nimal Wijerathne, Wetlands Management Unit, Sri Lanka Land Reclamation and Development Corporation

Pakistan:
Dr. Masood Arshad, WWF-Pakistan

United States:
Angela Andrade, Conservation International
Curtis Barrett, USAID Office of US Foreign Disaster Assistance
Charles Conley, iMMAp
Pascal Debons, Action Against Hunger
Manishka de Mel, Columbia University
Center for Climate Systems Research
Adam Dixon, World Wildlife Fund
Robyn Fischer, WaterAid America
Mark Gruin, International Orthodox Christian Charities
Julia Hanby, InterAction
Youngjae Kim, George Washington University
Achala Navaratne, American Red Cross
Dana Perzynski, Ayers Saint Gross Architects
Dr. Malini Ranganathan, American University
Tonya Rawe, CARE USA
Cynthia Rosenzweig, Columbia University
Center for Climate Systems Research
Rose Schneider, Health Systems Management
Charles Setchell, U.S. Agency for International Development
Doug Sheredos, Site Resources Inc.
Kevin Taylor, World Wildlife Fund
Alice Thomas, Refugees International

Vietnam:
Dr. Ian F. Wilderspin, Disaster Risk Reduction & Climate Change Adviser
### ACRONYMS

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<td>ADB</td>
<td>Asian Development Bank</td>
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<tr>
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<td>Asian Disaster Preparedness Center</td>
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<td>APFM</td>
<td>Associated Programme on Flood Management</td>
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<tr>
<td>CCA</td>
<td>Climate change adaptation</td>
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<tr>
<td>CDA</td>
<td>Capital Development Authority (Pakistan)</td>
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<td>CDRN</td>
<td>Corporate Disaster Response Network (Philippines)</td>
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<td>DRA</td>
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<td>DRR</td>
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<td>DSS</td>
<td>Decision support system</td>
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<td>EIA</td>
<td>Environmental Impact Assessment</td>
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<td>Food and Agriculture Organization of the United Nations</td>
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<td>FEMA</td>
<td>Federal Emergency Management Agency</td>
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<td>GFDRR</td>
<td>Global Facility for Disaster Reduction and Recovery</td>
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<tr>
<td>GIS</td>
<td>Geographic Information Systems</td>
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<td>GLOF</td>
<td>Glacial Lake Outburst Flood</td>
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<td>GRASS</td>
<td>Geographic Resources Analysis Support System</td>
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<td>GRB</td>
<td>Gender Responsive Budgeting</td>
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<td>HDDS</td>
<td>Hazards Data Distribution System</td>
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<td>IAHR</td>
<td>International Association for Hydro-Environment Engineering and Research</td>
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<tr>
<td>ICIMOD</td>
<td>International Centre for Integrated Mountain Development</td>
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<tr>
<td>IEE</td>
<td>Initial Environmental Examination</td>
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<td>IFM</td>
<td>Integrated flood management</td>
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<td>IFNet</td>
<td>International Flood Network</td>
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<td>IPCC</td>
<td>Intergovernmental Panel on Climate Change</td>
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<td>IWRM</td>
<td>Integrated water resources management</td>
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<td>LIMCOM</td>
<td>Limpopo Watercourse Commission</td>
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<tr>
<td>LWD</td>
<td>Large woody debris</td>
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<td>MOU</td>
<td>Memoranda of Understanding</td>
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<tr>
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<tr>
<td>NGO</td>
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<td>OFDA</td>
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<td>PPP</td>
<td>Public-private partnership</td>
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<td>SAGA</td>
<td>System for Automated Geoscientific Analyses</td>
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<td>SME</td>
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<td>SUDS</td>
<td>Sustainable urban drainage systems</td>
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<td>UAV</td>
<td>Unmanned aerial vehicle</td>
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<td>UHI</td>
<td>Urban heat island effect</td>
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<td>UN-SPIDER</td>
<td>United Nations Platform for Space-based Information for Disaster Management and Emergency Response</td>
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<td>VA</td>
<td>Vulnerability assessment</td>
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