



Natural and Nature-Based Flood Management:

A Green Guide

- The Natural and Nature-Based Flood Management: A Green Guide (Flood Green Guide) supports local communities' flood management efforts using an **INTEGRATED WATERSHED APPROACH**.
- The Flood Green Guide was developed by an **INTERDISCIPLINARY GLOBAL TEAM** of subject matter experts from around the world.
- The Flood Green Guide provides guidance on an optimal combination of approaches including engineering, **NATURAL AND NATURE-BASED METHODS**, and non-structural approaches to manage flood risk, while promoting environmental and social co-benefits.



OVERVIEW



KEY ISSUES

- **INTEGRATED FLOOD MANAGEMENT** is a holistic approach to flood risk management that requires contextual analysis and risk assessments.
- **BETTER PRACTICES** include a combination of hard engineering, nature-based, and non-structural methods to achieve optimum flood risk management.
- Flood risk management activities must **INTEGRATE** disaster risk-reduction and adaptation to a changing climate.
- **DECISION PROCESSES** should be socially equitable and comply with local/national laws and institutions, including informal social norms and customs.
- **URBAN ISSUES** should be considered and factored in to basin wide flood management planning.
- **FLOOD DISASTER RECOVERY** improves community resilience to future extreme events, avoids introduction of new social or environmental vulnerabilities, and enhances community adaptation capacity to climate uncertainties.



METHODS CHAPTER

SELECT NATURAL AND NATURE-BASED METHODS:

- Upper watershed management and restoration
- Soil conservation measures
- Wetlands restoration
- Swales and permeable pavements
- Green roofs/walls and blue roofs
- Constructed wetlands
- Rainwater harvesting and rain gardens
- Detention basins and retention ponds
- Multipurpose infrastructure
- Natural drainage path restoration
- Riparian vegetation restoration

FOUNDATIONAL CONCEPTS CHAPTER:

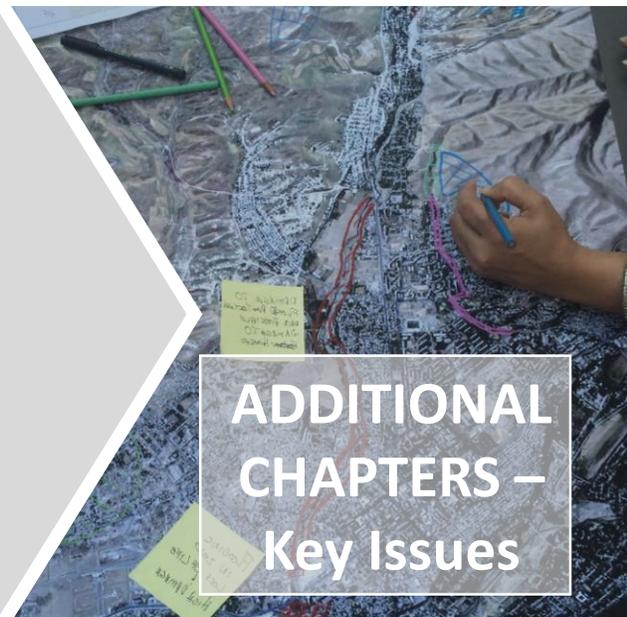
- The water cycle & flood types
- Integrated flood risk management
- Ecosystem services & climate change

FLOOD RISK ASSESSMENT CHAPTER:

- Information needs & sources
- Data analysis
- GIS & mapping

URBAN ISSUES CHAPTER:

- Urban flooding & factors affecting urban floods
- Urban microclimate and heat island effect
- Urban planning & land use zoning



ADDITIONAL CHAPTERS – Key Issues



SELECT CASE STUDIES

- Bogota urban land use management and flood risk reduction
- Bridging the gap between flood science and communities
- Community based mangrove restoration in Da Loc, Vietnam
- Floating gardens: an ecological solution for two flood prone areas
- Integrated and participatory flood risk management in Belo Horizonte, Brazil
- Risk games: improving community participation and communications
- Voices of youth: mapping risk around the globe

About the project: World Wildlife Fund, in partnership with the US Agency for International Development Office of Foreign Disaster Assistance (OFDA), developed Natural and Nature-Based Flood Management: A Green Guide. The Flood Green Guide is supported by a training program and a website platform – www.envirodm.org – with a resource library, online learning and additional information on evolving flood risk management better practices.

