

Climate change guidelines for forest managers



Front-cover photo:

Researchers for the national forest assessment in Viet Nam, supported by an FAO project, use laser technology devices to measure tree height and diameter (©FAO/Joan Manuel Baliellas)

Back-cover photo:

Forest monitoring in the Pacific Islands, which have some of the most vulnerable ecosystems to climate change (©Henry Scheyvens)

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Contents

Contributors	v
Foreword	viii
Acknowledgements	ix
Acronyms and abbreviations.....	x
Executive summary	xi
1. Introduction.....	3
Audience and purpose.....	4
Scope.....	5
Content and organization.....	5
2. Climate change and forests.....	7
Climate change processes and projections	7
Adaptation and mitigation in forestry.....	8
What does climate change mean for forest managers?	9
3. Sustainable forest management and related approaches for effective climate change responses.....	13
Sustainable forest management.....	13
Global, regional and national policies on climate change.....	15
4. Management responses to climate change	19
Vulnerability and risk assessment of climate change impacts and mitigation options.....	21
A guiding framework for adaptation actions.....	24
A guiding framework for mitigation actions.....	55
5. Monitoring and evaluation.....	63
6. Conclusion.....	69
Annex 1. Glossary	73
Annex 2. Knowledge tools.....	87
Annex 3. Participation in the validation workshops.....	103

Figures

- 1 Forest managers need to respond to a wide range of factors, all of which may be influenced by climate change..... 3
- 2 The process for integrating adaptation and mitigation measures into forest management plans and practices..... 20

Boxes

- 1 Forest management and forest managers 4
- 2 Carbon sinks and sources..... 7
- 3 Adaptation and mitigation..... 9
- 4 Sustainable forest management 13
- 5 Matching genetic variation with the new climate in the Sahel 30
- 6 The Ferny Creek Bushfire Alert System..... 36
- 7 Catastrophic forest disturbances..... 39
- 8 Community-based tsunami early warning system in Peraliya, Sri Lanka..... 45
- 9 Taking back the mangroves with community management..... 54

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Foreword

Forests play a significant role in climate change mitigation by acting as “sinks”, absorbing carbon from the atmosphere and storing it in biomass and soils, but, when cleared or degraded, they are also significant sources of greenhouse gas emissions. Forests, therefore, are important components in strategies for adapting to climate change. Without direct management interventions, climate change is likely to jeopardize forest ecosystem health, resilience, productivity, biodiversity and carbon storage, and forest degradation and loss will continue to contribute to climate change.

The strong relationship between forests and climate implies that a dramatic change in one will influence the other. This feedback could be negative in some situations and positive in others. Sustainable forest management can help reduce the negative effects of climate change on forests and forest-dependent people, and it can help ensure that forests play their role in mitigating climate change. Forest management decisions made now will affect forests many decades into the future. Thus, it is important for managers to plan now for climate change.

FAO is publishing these guidelines to support forest managers in responding to climate change challenges and opportunities at the forest management unit level. Articulating specific goals and objectives for climate change can assist forest managers to incorporate climate change considerations into forest management plans and practices. These guidelines will also be of interest to a wider range of stakeholders concerned about forests and climate change.

The guidelines are complementary to the FAO publication *Climate change for forest policy-makers*, which sets out an approach for integrating climate change into national forest programmes to support sustainable forest management. Countries are invited to use the two documents and to adapt them, as necessary, to fit national and subnational circumstances.



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Acronyms and abbreviations

CBD	Convention on Biological Diversity
CIFOR	Center for International Forestry Research
CO₂	carbon dioxide
FAO	Food and Agriculture Organization of the United Nations
FMU	forest management unit
GHG	greenhouse gas
ITTO	International Tropical Timber Organization
NGO	non-governmental organization
SFM	sustainable forest management
REDD+	reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks
UNFCCC	United Nations Framework Convention on Climate Change

Executive summary

The effects of climate change and climate variability on forest ecosystems are evident around the world and further impacts are unavoidable, at least in the short to medium term. Addressing the challenges posed by climate change will require adjustments to forest policies and changes to forest management plans and practices.

In 2010, FAO prepared guidelines to support policy-makers in integrating climate change concerns into new or existing forest policies and national forest programmes. This document serves as a companion to those 2010 guidelines. It has been prepared to assist forest managers to better assess and respond to climate change challenges and opportunities at the forest management unit level. Proposed actions are intended to be relevant to all kinds of forest manager – such as individual forest owners, private forest enterprises, public-sector agencies, indigenous groups and community forest organizations. The actions are applicable in all forest types in all regions and for all management objectives. They are generic, so their adaptation to local circumstances is required.

Adaptation and mitigation are the two main responses to climate change. Mitigation addresses the causes of climate change and adaptation its impacts. In the forest sector, adaptation encompasses changes in management practices designed to decrease the vulnerability of forests to climate change and interventions intended to reduce the vulnerability of people to climate change. Mitigation strategies in the forest sector can be grouped into four main categories: reducing emissions from deforestation; reducing emissions from forest degradation; enhancing forest carbon sinks; and product substitution.

Sustainable forest management (SFM) is consistent with climate change adaptation and mitigation and provides a comprehensive framework that can be adapted to changing circumstances. Efforts to advance towards SFM have provided a wealth of knowledge, experience, best-practice guidance, tools, mechanisms and partnerships that can be applied to help meet climate change challenges and which informs this document. Using SFM as an overall framework helps ensure that adaptation and mitigation measures are synergistic and balanced with other forest management objectives and take into consideration the economic, social and environmental values of forests.

This document provides guidance on what forest managers should consider in assessing vulnerability, risk, mitigation options, and actions for adaptation, mitigation and monitoring in response to climate change. Recommended actions for climate change adaptation address impacts on: forest productivity; biodiversity; water availability and quality; fire; pests and diseases; extreme weather events; sea-level rise; and economic, social and institutional considerations. A range of mitigation actions is provided, along with guidance on the additional monitoring and evaluation that may be required in forests in the face of climate change.

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Sunset over forest-covered mountains, Province of Bac Kan, Viet Nam. Climate change is impairing the ability of forests to deliver critical goods and ecosystem services, to the detriment of the livelihoods of forest dwellers, forest-dependent communities and others who benefit from forests.