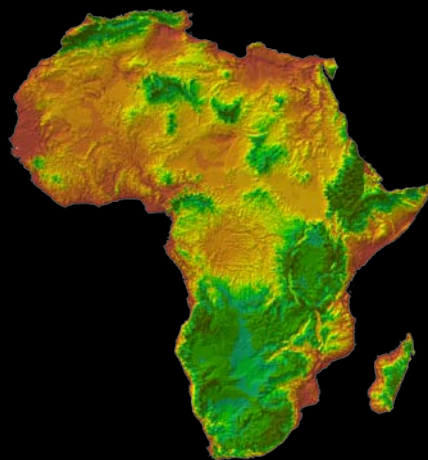




AFRICA

Mountains Atlas

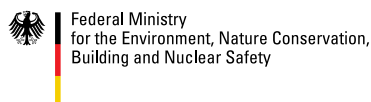


AFRICA

Mountains Atlas



 Austrian
Development Cooperation



Swiss Agency for Development
and Cooperation SDC



© 2014, United Nations Environment Programme

ISBN: 978-92-807-3406-5

Job Number: DEP/1829/NA

This publication may be reproduced in whole or in part and in any form for educational or non-profit purposes without special permission from the copyright holder, provided acknowledgement of the source is made. UNEP and the authors would appreciate receiving a copy of any publication that uses this report as a source.

No use of this publication may be made for resale or for any other commercial purpose whatsoever without prior permission in writing from the United Nations Environment Programme.

United Nations Environment Programme

PO Box 30552, Nairobi 00100, Kenya

Tel: +254 20 7621234

Fax: +254 20 7623943/44

<http://www.unep.org>

For bibliographic and reference purposes this publication should be referred to as:

UNEP (2014), *Africa Mountains Atlas*. United Nations Environment Programme (UNEP), Nairobi.

This book is available from Earthprint.com, <http://www.earthprint.com>.

Printed by Progress Press Ltd, Malta

Distribution by Earthprint, Ltd, UK

DISCLAIMER

The views expressed in this publication are not necessarily those of the agencies cooperating in this project. The designations employed and the presentations do not imply the expression of any opinion whatsoever on the part of UNEP or cooperating agencies concerning the legal status of any country, territory, city, or area of its authorities, or the delineation of its frontiers or boundaries.

Mention of a commercial company or product in this report does not imply endorsement by the United Nations Environment Programme. The use of information from this publication concerning proprietary products for publicity or advertising is not permitted. Trademark names and symbols are used in an editorial fashion with no intention of infringement on trademark or copyright laws.

We regret any errors or omissions that may have been unwittingly made.

UNEP

promotes environmentally sound practices globally and in its own activities. This publication is printed on 100 per cent chlorine free paper from sustainably managed forests. Our distribution policy aims to reduce UNEP's carbon footprint.

FOREWORDvi

PREFACE.....vii

EXECUTIVE SUMMARY ix

1 Africa’s Mountains 2

WHAT IS A MOUNTAIN?..... 4

THE CREATION STORY: PLATE TECTONICS AND MOUNTAIN FORMATION..... 4

TYPES OF AFRICA’S MOUNTAINS 8

 Northern Africa..... 10

 Western Africa 11

 Central Africa 12

 Eastern Africa 13

 Southern Africa 14

 Western Indian Ocean Islands 15

CHARACTERISTICS OF AFRICA’S MOUNTAINOUS AREAS 16

 Ranges and Massifs..... 18

 Volcanic Mountains 30

 Highlands 36

CONCLUSION..... 38

REFERENCES..... 38

2 The Dynamics of Africa’s Mountain Ecosystems 42

ECOSYSTEM GOODS AND SERVICES 44

 Water Towers 46

 Biodiversity..... 48

 Agriculture 50

 Non-Timber Forest Products 58

 Forests and Agroforestry..... 59

 Carbon Sequestration 60

 Tourism 62

 Sacred Places 63

REGIONAL PROFILES	64
Northern Africa	64
Western Africa	68
Central Africa	72
Eastern Africa	76
Southern Africa and Western Indian Ocean Islands.....	82
PAYMENT FOR ECOSYSTEM GOODS AND SERVICES (PES)	87
CONCLUSION	89
REFERENCES	90

3 Impacts on Africa's Mountains..... 96

IMPACTS FROM NATURAL PROCESSES	98
Meteorological Processes	98
<i>Weather and Climate</i>	98
<i>Landslides</i>	100
<i>Receding Glaciers and Snow</i>	102
Hotspot: Mount Kilimanjaro, United Republic of Tanzania	103
Hotspot: Rwenzori Mountains, Uganda and the DRC.....	106
Hotspot: Mount Kenya, Kenya.....	108
<i>Dust Storms</i>	111
Hotspot: Tibesti Massif and Ennedi Mountains, Chad and Libya.....	112
Geological Processes.....	114
<i>Earthquakes</i>	114
<i>Volcanic Eruptions</i>	116
Hotspot: Mount Cameroon, Cameroon	118
Hotspot: Nyamuragira, Nyiragongo and Goma, DRC	122
Hotspot: Nabro Volcano, Eritrea.....	126
HUMAN IMPACTS.....	130
Population Density and Growth	130
Hotspot: Cape Town and Table Mountain, Boland Mountain	134
and the Matroosberg Mountains, South Africa	
Hotspot: Addis Ababa, Ethiopian Highlands, Ethiopia	136
Hotspot: Dar es Salaam, Uluguru Mountains, United Republic of Tanzania	138
Mountain Agriculture	140
Hotspot: Marrakech, Atlas Mountains, Morocco	142
Hotspot: Mount Elgon, Uganda.....	144
Hotspot: Lake Alemaya, Ethiopian Highlands, Ethiopia.....	146
Mining	150
Hotspot: Witwatersrand, South Africa	154
Hotspot: Letseng Diamond Mine, Lesotho	156
Deforestation	158
Hotspot: Mount Moco, Angola.....	160
Hotspot: Aberdare Mountain Range, Kenya	162

Dams.....	164
Hotspot: Lesotho Highlands Water Project, Lesotho	166
Hotspot: Taskourt Dam, Atlas Mountains, Morocco.....	170
Hotspot: Tekeze Dam, Ethiopia.....	172
CONCLUSION	174
REFERENCES	174
 4 Protecting Africa's Mountains	180
 THE GLOBAL CONTEXT: INTERNATIONAL DESIGNATIONS TO PROTECT MOUNTAIN BIODIVERSITY	182
Protecting Habitats at a Global Scale	183
<i>International Union for Conservation of Nature (IUCN) Protected Areas</i>	183
<i>World Heritage Sites</i>	184
Protecting Species at a Global Scale	186
<i>Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)</i>	186
<i>IUCN Red List</i>	186
THE REGIONAL CONTEXT: MOUNTAIN LAW AND POLICIES IN AFRICA	187
Regional Initiatives.....	187
<i>East African Community Treaty</i>	187
<i>African Highlands Initiative (AHI)</i>	187
<i>New Partnership for Africa's Development (NEPAD)</i>	188
<i>Lusaka Agreement</i>	188
Protecting Transboundary Areas.....	188
<i>Transboundary Protection in Central and Eastern Africa</i>	190
<i>Transboundary Protection in Eastern Africa</i>	195
<i>Transboundary Protection in Western Africa</i>	198
<i>Transboundary Protection in Central and Western Africa</i>	199
<i>Transboundary Protection in Southern Africa</i>	200
THE NATIONAL CONTEXT: LAWS, POLICIES AND DESIGNATED PROTECTED AREAS	201
National Parks	203
Protection Mechanisms: Species	205
Hotspot: Simien Mountains National Park, Ethiopia	205
Protection Mechanism: Ecosystems	210
<i>Protecting Glaciers</i>	210
<i>Protecting Forests</i>	211
Hotspot: Gishwati Forest, Rwanda.....	212
<i>Protecting Water Catchments</i>	214
Hotspot: Mau Forest Complex, Kenya	215

THE LOCAL CONTEXT: TRADITIONAL KNOWLEDGE AND COMMUNITY-LEVEL PROTECTION	218
Hotspot: Kilum-Ijim Forest, Cameroon	220
Threats to Protected Areas	225
Threats to Transboundary Protected Areas	226
CONCLUSION	227
REFERENCES	227

5 Challenges and Opportunities

RECOGNIZE AND ADDRESS POVERTY	235
ENSURE FOOD SECURITY	243
INCREASE INVESTMENT, FINANCING AND INFRASTRUCTURE IN MOUNTAINOUS REGIONS	247
PROVIDE ACCESS TO ENERGY SECURITY THROUGH HYDROPOWER	251
IMPROVE WATER AND LAND USE MANAGEMENT	256
EMPOWERING WOMEN AND GIRLS	262
BUILD CAPACITY FOR ADAPTATION TO CLIMATE CHANGE	267
CONCLUSION	273
REFERENCES	273

ACRONYMS	277
ACKNOWLEDGEMENTS	279
APPENDIX I: IMAGERY SOURCES	280
APPENDIX II: ABOUT REMOTE SENSING IMAGES USED IN THIS PUBLICATION	282
APPENDIX III: HOW TO DOWNLOAD LANDSAT SATELLITE IMAGERY	283
APPENDIX IV: COMPOSITING (STACKING) LAYERS OF IMAGE FILES	286
APPENDIX V: ABOUT OUR OTHER DATA SOURCES	287
INDEX	288

Figures

Figure 1.1: Break-up of Pangaea over time	5
Figure 1.2: Present day plate boundaries	6
Figure 1.3: The geologic time scale	7

Figure 1.25: Volcanoes of the Virunga region	30
Figure 1.26: Mount Cameroon Volcanic Line	33
Figure 1.27: Elevation map of the Ethiopian Highlands	36
Figure 1.28: Elevation map of the Fouta Djallon Highlands	37

预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_16220

