



HEALTHY
PLANET
HEALTHY
PEOPLE



Technical Summary



CAMBRIDGE

University Printing House, Cambridge CB2 8BS, United Kingdom
One Liberty Plaza, 20th Floor, New York, NY 10006, USA
477 Williamstown Road, Port Melbourne, VIC 3207, Australia
314–321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre, New Delhi – 110025, India
79 Anson Road, #06–04/06, Singapore 079906

Cambridge University Press is part of the University of Cambridge.
It furthers the University's mission by disseminating knowledge in the pursuit of education, learning and research at the highest international levels of excellence.

www.cambridge.org
Information on this title: www.cambridge.org/9781108707664
© Cambridge University Press 2020

First published by the United Nations Environment Programme in 2020
Copyright © 2020 United Nations Environment Programme

ISBN No.: 978-92-807-3782-0

Job Number: DEW/2280/NA

This publication may be reproduced in whole or in part and in any form for educational or non-profit services without special permission from the copyright holder, provided acknowledgement of the source is made. UN Environment would appreciate receiving a copy of any publication that uses this publication as a source. No use of this publication may be made for resale or any other commercial purpose whatsoever without prior permission in writing from UN Environment. Applications for such permission, with a statement of the purpose and extent of the reproduction, should be addressed to the Director, Communication Division, UN Environment, P. O. Box 30552, Nairobi 00100, Kenya.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of United Nations Environment Programme concerning the legal status of any country, territory or city or its authorities, or concerning the delimitation of its frontiers or boundaries. For general guidance on matters relating to the use of maps in publications please go to <http://www.un.org/Depts/Cartographic/english/htmain.htm>

Printed by

Disclaimers

Mention of a commercial company or product in this document does not imply endorsement by UN Environment or the authors. The use of information from this document for publicity or advertising is not permitted. Trademark names and symbols are used in an editorial fashion with no intention on infringement of trademark or copyright laws.

© Maps, photos, and illustrations as specified

This document may be cited as: United Nations Environment Programme (2019). Global Environment Outlook – GEO-6 Technical Summary. Nairobi. <https://wedocs.unep.org/bitstream/handle/20.500.11822/32024/TS.pdf?sequence=1&isAllowed=y>

Cover design: Joseph Shmidt-Klingenberg and Sebastian Obermeyer

Graphic Design: Joseph Shmidt-Klingenberg and Sebastian Obermeyer

Design and Layout: Jennifer Odallo (UNON Publishing Services Section – ISO 14001-certified)

Cambridge University Press has no responsibility for the persistence or accuracy of URLs for external or third-party internet websites referred to in this publication, and does not guarantee that any content on such websites is, or will remain, accurate or appropriate. Information regarding prices, travel timetables, and other factual information given in this work is correct at the time of first printing but Cambridge University Press does not guarantee the accuracy of such information thereafter.

UNEP promotes environmentally sound practices globally and in its own activities. Our distribution policy aims to reduce UNEP's carbon footprint.



GLOBAL ENVIRONMENT OUTLOOK

GEO-6

TECHNICAL SUMMARY

Acknowledgements

This Technical Summary is an integrated summary of UN Environment Programme's flagship publication, the sixth Global Environment Outlook (GEO-6). The UN Environment Programme acknowledges the contributions made by several individuals and institutions in the preparation and production of this report. Below is the full list of names and institutions involved in this process:

Coordinating Editors

Joyeeta Gupta (GEO-6 Co-Chair), Paul Ekins (GEO-6 Co-Chair), and Pierre Boileau (Senior Environmental Affairs Officer, UNEP)

Contributing authors

Ghassem Asrar, Elaine Baker, Tariq Banuri, Jane Bemigisha, Graeme Clark, John Crump, Florence Mayocyoc-Daguitan, Jonathan Davies, Phillip Dickerson, Nicolai Dronin, Mark Elder, Erica Gaddis, Gensuo Jia, Anna Maria Grobicki, Cristina Guerreiro, Andrés Guhl, Peter Harris, Rowena Hay, Steve Hedden, Klaus Jacob, Mikiko Kainuma, Terry Keating, Peter King, Pali Lehohla, Christian Loewe, Paul Lucas, Diana Mangalagiu, Diego Martino, Shanna McClain, Catherine McMullen, Adelina Mensah, Indu K. Murthy, Charles Mwangi, John Muthama Nzioka, Jacob Park, Laura Pereira, Fernando Filgueira Prates, Walter Rast, Jake Rice, Joni Seager, William Sonntag, Peter Stoett, Michelle Tan, Detlef van Vuuren, Dimitri Alexis Zenghelis.

Assistant

Moritz Steigler

GEO-6 Core Team

Pierre Boileau (Head of Global Assessment Unit), Yunting Duan, Eddah Kaguthi, Caroline Kaimuru, Jian Liu, Caroline Mureithi, Wambui Ndung'u, Brigitte Ohanga, Franklin Odhiambo, Grace Odhiambo, Adele Roccato, Sharif Shawky, Edoardo Zandri

Production Support

Copy Editor

John Smith

Design and Layout

Jennifer Odallo (UNON Publishing Services Section – ISO 14001-certified)

Table of contents

ACKNOWLEDGEMENTS	iv
LIST OF FIGURES	vi
LIST OF TABLES	vii
LIST OF BOXES	vii
CO-CHAIRS' MESSAGE	viii
FOREWORD	ix
1 A HEALTHY PLANET SUPPORTS HEALTHY PEOPLE	1
1.1 The Methodology of GEO-6	3
References	7
2 FIVE DRIVERS AFFECT THE HEALTH OF THE PLANET	9
2.1 Population Dynamics	9
2.2 Economic Development	11
2.3 Urbanization	11
2.4 Climate change	15
2.5 Technology	18
2.6 Interactions across the five drivers	19
References	20
3 AN INCREASINGLY UNHEALTHY PLANET AFFECTS EVERYONE'S HEALTH	21
3.1 Cross-cutting issues	21
3.1.1 Food	21
3.1.2 Energy	22
3.1.3 Resources, chemicals, waste and the circular economy	23
3.2 State of the Global Environment	25
3.2.1 Air	25
3.2.2 Biodiversity	30
3.2.3 Oceans and coasts	35
3.2.4 Land and soil	39
3.2.5 Freshwater	45
3.3 Human health, equity and economic dimensions	48
3.3.1 Health of the planet and human health	48
3.3.2 Cross-cutting equity, gender and economic issues	51
References	55
4 DESPITE SOME SUCCESS STORIES, POLICY MEASURES LAG BEHIND	57
4.1 Introduction: some policy success stories exist, but they are not enough	57
4.2 Addressing specific drivers through policy innovation	60
4.3 Thematic responses	61
4.3.1 Air	62
4.3.2 Biodiversity	64
4.3.3 Oceans	66
4.3.4 Land and soil	67
4.3.5 Freshwater	69
4.4 Bottom-up action	73
4.5 Lessons learned	74
References	77
5 A HEALTHY PLANET AND HEALTHY PEOPLE ARE SYNERGETIC: ACHIEVING TRANSFORMATIVE CHANGE ..	79
5.1 Future developments without further policy interventions	79
5.2 Pathways to Sustainable Development	83
5.3 Transformative Change	87
5.4 A Healthy Planet and Healthy People are Synergetic	88
References	91
6 DATA AND KNOWLEDGE FOR A HEALTHY PLANET	93
6.1 Data and Knowledge: State and Future	93
6.2 The Primary Domains of Data and Needs in those Domains	95
6.3 The Need for Open Data and International Cooperation	97
References	100
ANNEX 1. EXAMPLES OF OTHER GLOBAL ENVIRONMENTAL ASSESSMENTS AND THEIR LINKS TO GEO-6	101
7 ACRONYMS AND ABBREVIATIONS	102
8 GLOSSARY	104

List of Figures

Figure 1.1	The DPSIR approach used in GEO-6	3
Figure 1.2	Integrating equity and economic questions in the DPSIR framework	4
Figure 1.3	Methodological approach for assessing policy effectiveness: top-down and bottom-up approach.....	4
Figure 1.4	The four-box model for the qualitative communication of confidence.....	6
Figure 2.1	Female secondary education and total fertility rates	9
Figure 2.2	World population, emissions and fertility.....	10
Figure 2.3	How economic growth rates in developing countries began to outstrip those in developed countries.....	11
Figure 2.4	Global urban population growth propelled by cities.....	12
Figure 2.5	City growth rates and urban vulnerability.....	13
Figure 2.6	Built-up area vs. population (1975–2015).....	14
Figure 2.7	World urbanization trends	15
Figure 2.8	Mean atmospheric CO ₂ concentrations.....	15
Figure 2.9	Emission trends in different countries from 1990 to 2015: red lines show growth and blue lines show reductions	16
Figure 2.10	Consumption and associated environmental pressures are unequally distributed across nations.....	16
Figure 2.11	Trends in numbers of loss-relevant natural events	17
Figure 2.12	The economic and human impact of disasters from 2005–2014.....	17
Figure 3.1	Chemical intensification, 1955-2015	24
Figure 3.2	Annual emission trends of GHG and air pollution from 1990 to 2014 in kilotonnes/year by pollutant, region and sector.....	26
Figure 3.3	Global annual average temperature anomalies (relative to the long-term average for 1981-2010)	28
Figure 3.4	Arctic sea ice age and extent	29
Figure 3.5	Deaths per 100,000 people in 2016 attributable to ambient PM _{2.5} air pollution; age standardized data.....	29
Figure 3.6	Percentage of PM _{2.5} related deaths in a region, indicated by the column due to (a) emissions produced or (b) goods and services consumed in the region indicated by the row.	30
Figure 3.7	The causal factors, drivers and direct pressures contributing to the degradation of global biodiversity and the ecosystems services provided by it.	31
Figure 3.8	Examples of global distribution of pressures on (a) threat intensity (H:High; L:Low; M:Medium; VH:Very High; VL:Very Low) from terrestrial invasive species; and (b) cumulative fisheries by-catch intensity for seabirds, sea mammals and sea turtles by all gear types (gillnet, longline and trawl)	32
Figure 3.9	Map showing maximum heat stress during the 2014-2017 period of the global coral bleaching event (ongoing at the time of writing).....	35
Figure 3.10	Global map of potential marine plastic input to the oceans, based on human activities and watershed characteristics.....	38
Figure 3.11	Plastic litter in the open ocean.....	39
Figure 3.12	Global area allocation for food production.....	40
Figure 3.13	Developing countries: net cereals trade (million tonnes). Net cereal imports have increased since 1970 and are expected to rise.....	42
Figure 3.14	Global forest ownership, 2002-2013	43
Figure 3.15	Distribution of agricultural land holdings: females	43
Figure 3.16	Global map of land deals.....	44
Figure 3.17	Make-up of total food waste in developed and developing countries.....	45
Figure 3.18	Global trends in increasing groundwater use	47
Figure 3.19	Proportion of total water withdrawn for agriculture	47
Figure 3.20	Impacts on the health of the planet and people	50
Figure 3.21	Contribution to drivers and pressures of privileged and marginalized people.....	51
Figure 3.22	Vulnerability to risks and impacts.....	53
Figure 4.1	Protected Areas of the World	57
Figure 4.2	Contraceptive prevalence and total fertility.....	61
Figure 4.3	Groupings of selected regional multilateral air pollution agreements	62
Figure 4.4	Climate finance for adaptation.....	63
Figure 4.5	Benefits of tenure-secure lands outweigh the costs in three Latin American countries	68
Figure 4.6	Ramsar sites designated, by year and region.....	70
Figure 4.7	SDGs targeted by the total workshop seeds and the total Climate CoLab proposals	72
Figure 4.8	Total number of workshop seeds and Climate CoLab proposals addressing each intervention in the agriculture, food, land and biodiversity cluster (seeds and proposals are double counted when they meet multiple measures).....	73

Figure 5.1	Projected global trends in target achievement for selected Sustainable Development Goals and internationally agreed environmental goals.....	79
Figure 5.2	Percentage change in non-energy crop production vs. the percentage change in non-energy cropland area from 2010 to 2030 and 2050.....	80
Figure 5.3	Future projections of emissions for air pollutants SO ₂ , NO _x and BC.....	81
Figure 5.4	Projected under-five mortality rate in 2030.....	82
Figure 5.5	Different pathways leading to a global mean temperature increase well below 2°C.....	84
Figure 5.6	2010–2050 energy intensity reduction rate and the 2050 share of low GHG technologies in the total mix of the scenarios included in the SSP database.....	84
Figure 5.7	Differences in the air pollution emissions between various climate mitigation scenarios, and the SSP2 baseline.....	85
Figure 5.8	Different policy approaches.....	87
Figure 5.9	Choice to be made to achieve a healthy planet for healthy people.....	89
Figure 6.1	Global hydrological fluxes and storages (expressed in 1,000 km ³ per year), illustrating natural and anthropogenic cycles.....	93
Figure 6.2	SDG indicator status.....	94
Figure 6.3	Environment-related SDG indicators by goal and tier.....	94
Figure 6.4	Equity questions in data and knowledge.....	97
Figure 6.5	Extent of adoption of the System of Environmental-Economic accounting.....	98

List of Tables

Table 2.1	Interrelationships across the drivers.....	19
Table 3.1	Estimates of economic value, employment and major environmental impacts of the major ocean-related industries.....	37
Table 3.2	Ranking the health of the system components of the planet (2018-2050).....	48
Table 3.3	Ranking the impact of system components on human health (2018-2050).....	49
Table 4.1	A healthy or unhealthy planet: employment and livelihoods (E&L).....	59
Table 5.1	Historic and business-as-usual trends in resource use efficiency in production and consumption.....	80

List of Boxes

预览已结束，完整报告链接和

<https://www.yunbaogao.cn/report/index/report?>