

GEO6

GLOBAL ENVIRONMENT OUTLOOK

SUMMARY FOR POLICYMAKERS

UN 
environment
United Nations
Environment Programme



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/9781108707688
DOI: 10.1017/9781108639217

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First published 2019

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This document may be cited as: UN Environment (2019). Global Environment Outlook – GEO-6: Summary for
Policymakers. Nairobi. DOI 10.1017/9781108639217.

Job Number: DEW/2231/NA
© Maps, photos, and illustrations as specified
Cover design: Joseph Schmidt-Klingenberg and Sebastian Obermeyer
Graphic Design: Joseph & Sebastian
Layout: UNON Publishing Services Section – ISO 14001-certified

Printed in Singapore by Markono Print Media Pte Ltd


A catalogue record for this publication is available from the British Library.
ISBN 978-1-108-70768-8 Paperback

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GEO-6 Assessment Process

The sixth Global Environment Outlook (GEO-6), focusing on the theme “healthy planet, healthy people”, aims to help policymakers and all of society achieve the environmental dimension of the Sustainable Development Goals, internationally agreed environmental goals and the multilateral environmental agreements. It does so by assessing recent scientific information and data, analyzing current and past environmental policy, and identifying future options for achieving sustainable development by 2050.

The original request to prepare GEO-6 came from Member states at the first session of the United Nations Environment Assembly of the United Nations Environment Programme (UNEP), when, in paragraph 8 of resolution 1/4, the Executive Director of UNEP was requested, within the programme of work and budget, to undertake the preparation of the sixth Global Environment Outlook, supported by UNEP Live, with the scope, objectives and procedures of GEO-6 to be defined by a transparent global, intergovernmental and multi-stakeholder consultation informed by document UNEP/EA.1/INF/14, resulting in a scientifically credible, peer-reviewed GEO-6 and its accompanying summary for policymakers, to be endorsed by the Environment Assembly no later than in 2018.

At its third session, the Environment Assembly, in paragraphs 1 and 2 of its decision 3/1, requested the Executive Director to issue the sixth Global Environment Outlook at least three months before the fourth session of the Assembly; to schedule the negotiations on the Summary for policymakers at least six weeks in advance of the fourth session of the Assembly; and to present the Outlook and the Summary for consideration and possible endorsement by the Assembly at its fourth session.

Scope

GEO-6 builds on previous GEO reports and continues to provide an analysis of the state of the global environment, the global, regional and national policy response as well as the outlook for the foreseeable future. It differs from previous GEO reports in its emphasis on Sustainable Development Goals and in providing possible means of accelerating achievement of these goals. GEO-6 is made up of four distinct but closely linked parts.

- ❖ **Part A** assesses the state of the global environment in relation to key internationally agreed goals such as the Sustainable Development Goals.
- ❖ **Part B** provides an analysis of the effectiveness of the policy response to these environmental challenges.
- ❖ **Part C** reviews the scenarios literature and assesses pathways towards achieving Agenda 2030 as well as achieving a truly sustainable world in 2050.
- ❖ **Part D** identifies future data and knowledge necessary to improve our ability to assess environmental impacts.

The GEO-6 also considers key policy questions. These include:

- ❖ What are the primary drivers of environmental change?

- ❖ What is the current state of the environment and why?
- ❖ How successful have we been in achieving our internationally agreed environmental goals?
- ❖ Have there been successful environmental policies?
- ❖ What are the policy lessons learned and possible solutions?
- ❖ Is the current policy response enough?
- ❖ What are the business as usual scenarios and what does a sustainable future look like?
- ❖ What are the emerging issues and megatrends including their possible impacts?
- ❖ What are the possible pathways to achieving Agenda 2030 and other internationally agreed environmental goals?

The development of GEO-6 involved extensive collaboration both within UN Environment and between UN Environment and a network of multidisciplinary experts and research institutions.

The intergovernmental and multi-stakeholder consultation mentioned above (Oct. 2014) requested that experts for content development, including reviewers and advisory groups, be nominated by governments and other main stakeholders based on their expertise and using a transparent nomination process while considering geographic and gender balance.

The following three GEO-6 specialized advisory bodies were convened to support the assessment process:

High-Level Intergovernmental and Stakeholder Advisory Group

The panel included 25–30 high-level government representatives from all six UN Environment regions as well as 8-10 key stakeholders. The High-level Group provided strategic advice and initial guidance on the structure and content of the GEO-6 Summary for Policymakers and further guidance to the experts in finalizing the draft Summary, in preparation for the final intergovernmental negotiation.

Science Advisory Panel

The Panel included 22 distinguished scientists who met face-to-face five times. The Panel was responsible for providing advice on the scientific credibility of the assessment process. The Panel provided scientific advice; standards and guidelines for the assessment and review process; and reviewed the findings of the mid-term evaluation of the assessment process.

Assessment Methodologies, Data and Information Working Group

This working group of 12 professionals met face-to-face three times between 2015 and 2018 and provided support and guidance to the assessment process on the use of core datasets and indicators.

This Summary for Policymakers is based on and consistent with the findings of the GEO-6 assessment. The GEO-6 Summary for Policymakers was negotiated and endorsed at an intergovernmental meeting from 21 to 24 January 2019 in Nairobi, Kenya.

This Summary for Policymakers highlights the findings of the sixth Global Environment Outlook (GEO-6) report and is prepared by the UN Environment Secretariat with:

Guidance from members of the GEO-6 High Level Intergovernmental and Stakeholder Advisory Group (HLG)

Nassir S. Al-Amri, Hæge Andenæs, Juan Carlos Arredondo, Sara Baisai Feresu, Benon Bibbu Yassin, Simon Birkett, Gillian Bowser, Joji Carino, Fernando E.L.S. Coimbra, Victoria de Higa Rodriguez, Laksmi Dhewanthi, Noasilalaonomenjahary Ambinintsoa Lucie, Arturo Flores Martinez (alternate), Sascha Gabizon, Prudence Galega, Edgar Gutiérrez Espeleta, Keri Holland (alternate), Pascal Valentin Houénou (Vice-chair), Yi Huang (Co-chair), Ingeborg Mork-Knutsen (alternate), Melinda Kimble, Asdaporn Krairapanond, Yaseen M. Khayyat, Pierluigi Manziona, Veronica Marques (alternate), Jock Martin, John M. Matuszak, Megan Meaney, Naser Moghaddasi, Bedrich Moldan, Roger Roberge, Najib Saab, Mohammed Salahuddin, Jurgis Sapijanskas (alternate), Paolo Soprano (Co-chair), Xavier Sticker, Sibylle Vermont (Vice-chair), Andrea Vincent (alternate), Terry Yosie.

Guidance from the co-chairs and vice-chairs of the GEO-6 Scientific Advisory Panel (SAP)

Nicholas King (Co-chair), Sarah Green (Co-chair), Maria del Mar Viana Rodriguez (Vice-chair), N.H. Ravindranath (Vice-chair)

Technical inputs from the GEO-6 Co-chairs and Authors

Paul Ekins (GEO-6 Co-Chair), Joyeeta Gupta (GEO-6 Co-Chair), Frederick Ato Armah, Giovanna Armiento, Ghassem Asrar, Elaine Baker, Graeme Clark, Irene Dankelman, Jonathan Davies, Nicolai Dronin, Mark Elder, Pedro Fidelman, Sandor Fulop, Erica Gaddis, Ania Maria Grobicki, Steve Hedden, Andres Ernesto Guhl, James Hollway, Fintan Hurley, Klaus Jacob, Mikiko Kainuma, Terry Keating, Peter King, Richard King, Andrei Kirilenko, Peter Lemke, Paul Lucas, Oswaldo Lucon, Diana Mangalagiu, Diego Martino, Shanna McClain, Gavin Mudd, Nibedita Mukherjee, Farhad Mukhtarov, Andrew Onwuemele, Leisa Perch, Laura Pereira, Walter Rast, Jake Rice, Peter Stoett, Michelle Tan, Detlef van Vuuren, Pandi Zdruli,

and

all authors whose contribution in the GEO-6 main assessment report served as a basis for the GEO-6 Summary for Policymakers

It was negotiated and agreed on 24 January 2019 by:

Afghanistan, Angola, Argentina, Armenia, Bangladesh, Belgium, Bhutan, Brazil, Burkina Faso, Canada, Chad, Chile, China, Colombia, Costa Rica, Cote d'Ivoire, Cuba, Democratic Republic of the Congo, Djibouti, Dominican Republic, Ecuador, Egypt, Eritrea, Estonia, Ethiopia, Eswatini, European Union, Fiji, Finland, France, Gabon, Georgia, Germany, Ghana, Greece, Guatemala, Guinea, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Italy, Japan, Jordan, Kenya, Lao People's Democratic Republic, Lebanon, Madagascar, Malawi, Maldives, Mali, Marshall Islands, Mexico, Mongolia, Montenegro, Myanmar, Nepal, Netherlands, Niger, Norway, Pakistan, Paraguay, Philippines, Qatar, Republic of Korea, Romania, Russian Federation, Saint Lucia, Samoa, Saudi Arabia, Senegal, Serbia, Singapore, South Africa, Spain, Sri Lanka, Sudan, Sweden, Switzerland, Syrian Arab Republic, United Republic of Tanzania, Thailand, Timor Leste, Togo, Trinidad and Tobago, Turkey, Tuvalu, Uganda, United Kingdom of Great Britain and Northern Ireland, United States of America, Uruguay, Zambia

Palestine attended the meeting as an observer

The UN Environment Secretariat included

Pierre Boileau (GEO-Head), Hilary Allison, Matthew Billot, Jillian Campbell, Charles Chapman, Kilian Christ, Yunting Duan, Valentin Foltescu, Francesco Gaetani, Caroline Kaimuru, Eddah Kaguthi, Angela Kim, Rachel Kosse, Allan Lelei, Jian Liu, David Marquis, Patrick Mmayi, Caroline Mureithi, Franklin Odhiambo, Brigitte Ohanga, Adele Roccato, Edoardo Zandri

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1. What is the Global Environment Outlook?

The Global Environment Outlook (GEO) is the result of a consultative and participatory process to prepare an independent assessment of the state of the environment, the effectiveness of the policy response in addressing environmental challenges and the possible pathways to achieving various internationally agreed environmental goals. The GEO is a series of studies that inform environmental decision-making for Governments and other stakeholders. {1.1}

The sixth Global Environment Outlook (GEO-6), under the theme “Healthy Planet, Healthy People”, aims to provide a sound, evidence-based source of environmental information to help policymakers and all of society to achieve the environmental dimension of the 2030 Agenda for Sustainable Development and internationally agreed environmental goals, and to implement the multilateral environmental agreements. It does so by assessing recent scientific information and data, analysing current and past environmental policies and identifying future options to achieve sustainable development by 2050. {1.1}

Since the first edition of the Global Environment Outlook (GEO) in 1997, there have been many examples of environmental improvement, especially where problems have been well-identified, manageable, and where regulatory and technological solutions have been readily available. Much more can be achieved in that regard through more effective implementation of existing policies. {Chapters 12 to 17}

Nevertheless, the overall condition of the global environment has continued to deteriorate since the first edition of GEO, despite environmental policy efforts across all countries and regions. Environmental policy efforts are being hindered by a variety of factors, in particular unsustainable production and consumption-patterns in most countries and climate change. GEO-6 concludes that unsustainable human activities globally have degraded the Earth's ecosystems, endangering the ecological foundations of society. {Chapters 4 to 9}

Urgent action at an unprecedented scale is necessary to arrest and reverse this situation, thereby protecting human and environmental health and maintaining the current and future integrity of global ecosystems. Key actions include reducing land degradation, biodiversity loss, and air, land and water pollution; improving water management and resource management; climate change mitigation and adaptation; resource efficiency; addressing decarbonization, decoupling and detoxification; and the prevention and management of risk and disasters. Those all require more ambitious and effective policies, including sustainable consumption and production, greater resource efficiency and improved resource management, integrated ecosystem management, and integrated waste management and prevention.¹ {Chapter 22}

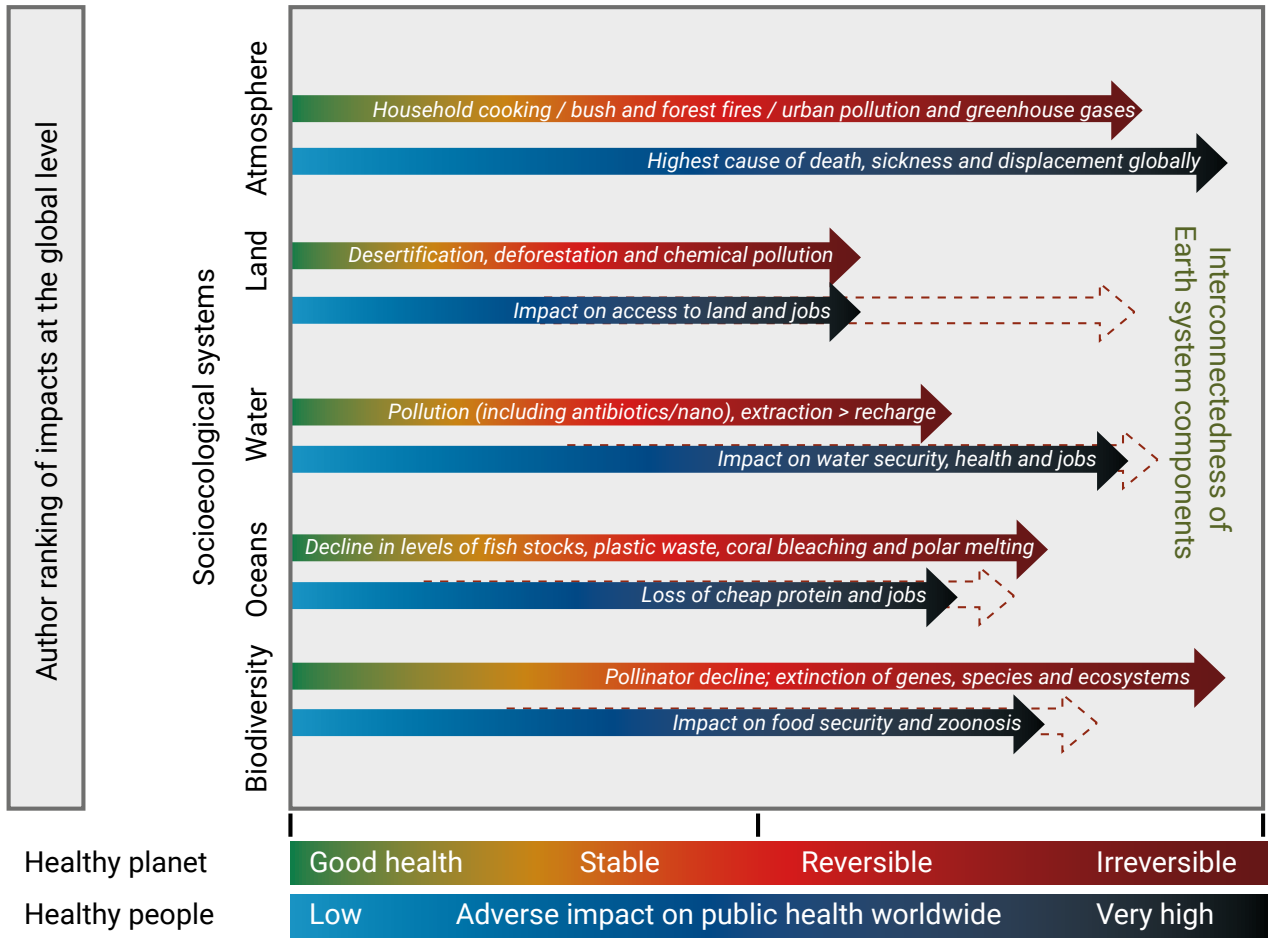
¹ This summary for policymakers uses confidence statements to better inform policymakers of the extent of evidence on a particular subject and the level of agreement across that evidence. Qualitative confidence statements used include the following: “well established” (much evidence and high agreement), “unresolved” (much evidence but low agreement), “established but incomplete” (limited evidence but good agreement) and “inconclusive” (limited or no evidence and little agreement). In addition, the higher confidence statements are sometimes further refined as follows: “very well established” (very comprehensive evidence base and very low disagreement) or “virtually certain” (very robust evidence base covering multiple temporal and spatial scales and almost no disagreement). Some statements providing quantitative confidence statements are also provided. Those include the following: “likely” (greater than 66 per cent probability) and “very likely” (greater than 90 per cent probability).

Mainstreaming environmental considerations into social and economic decisions at all levels is of vital importance. In line with the Sustainable Development Goals, GEO-6 shows that environmental issues are best addressed in conjunction with related economic and social issues, taking into account synergies and trade-offs between different goals and targets, including consideration of equity and gender dimensions. Governance can be improved at the local, national, regional and global levels, including broad coordination between policy areas. More ambitious and effectively implemented environmental policies are necessary, but alone they are not sufficient to meet sustainable development objectives. At the same time as ensuring sustainable sources of financing for sustainable development and aligning financing flows with environmental priorities, capacities have to be strengthened and scientific information taken into account for environmental management. Strong commitment from all stakeholders, partnerships and international cooperation would greatly facilitate the realization of environmental goals. {Chapters 22, 23, 24}

GEO-6 shows that a healthy environment is the best foundation for economic prosperity, human health and well-being. As figure SPM.1 illustrates, human behaviour has had various impacts on biodiversity, atmosphere, oceans, water and land. That environmental degradation, which ranges from serious to irreversible, has had a negative impact on human health. Atmospheric pollution has had the most severe negative impact, followed by degradation of water, biodiversity, ocean and land environment. It is therefore important that opportunities for prosperity and well-being that maintain or regain the integrity of ecosystems should be attained through sustainable development pathways that are shared and pursued globally. {24.4}

The following sections highlight the main global drivers of environmental change, the condition of the environment, the scale and effectiveness of policy responses, the potential pathways for achieving the Sustainable Development Goals in an increasingly complex world, and the data and information needs and opportunities that can support decision-making towards achieving those Goals.

Figure SPM.1. Relationship between planetary health and human health



NOTE: Dotted arrows show how things may be experienced differently in various parts of the world

Source: Gupta et al. (2019).

Note: The figure shows the degree of impact of human activity on the health of the planet (ranging from good health to irreversible damage) and the impact of the health of the planet on human health (ranging from low damage to high damage). Some environmental and health impact may be remediable in the short or long term, but "irreversible" environmental impact can only be remedied over the very long term, if at all.



2. What is happening to our environment and how have we responded?

2.1 Drivers of environmental change, megatrends and governance challenges

Human population dynamics or trends, particularly population pressure, and economic development have been acknowledged for many decades as the primary drivers of environmental change (*well established*). More recently, rapid urbanization and accelerating technological innovation have been additional influences. There are wide disparities globally in the consumption and production patterns that lie behind those drivers. {2.1.1, 2.2}

Those driving forces are also strongly intertwined, complex, and spread widely and unevenly across the world (*well established*). They are megatrends, developing at speeds with which responses by established governance structures at all levels – urban and rural, local, national, regional, global and supranational – are thus far insufficient to keep pace. {2.1.1}

The global population in 2018 is some 7.5 billion, with median projections estimating nearly 10 billion by 2050 and nearly 11 billion by 2100 (United Nations figures) (*well established*). Increases in life expectancy and reductions in infant and other mortality mean that population growth rates will continue to remain positive in all regions except Europe and certain parts of Asia. Unequal access to education, and lack of empowerment of women, as well as their lack of access to sexual and reproductive health services, all contribute to high birth rates. Without changes in production and consumption patterns, population growth will continue to increase environmental pressures. {2.3, 2.3.4, 2.1.1}

Urbanization is happening at an unprecedented rate globally and cities have become the foremost drivers of economic development across the world (*well established*). More people, especially in emerging and developing economies, are living in cities and towns, and the world's urban population is expected to rise to 66 per cent by 2050 (*well established*). Approximately 90 per cent of city growth will occur in Africa and Asia. Africa is the most rapidly urbanizing region, and is also the region expected to experience the highest population growth (*well established*). Some 30 per cent of urban residents globally have no access to basic services or social protection, with poor women in low-income

regions of the world (*well established*). Nevertheless, the “Grow now, clean up later” economic approach used in certain regions has not accounted for climate change, pollution or degraded natural systems. That approach has also contributed to increasing inequality within and between countries and will ultimately be more costly. It will not be able to sustainably support 10 billion healthy, fulfilled and productive people in 2050 without profound and urgent changes in consumption and production patterns. {2.5.1}

Decoupling of environmental degradation and resource use from economic growth and associated production and consumption patterns is required for achievement of the Sustainable Development Goals (*well established*). Partial decoupling between environmental pressures and economic growth can already be observed for some impacts and resources in certain countries. Further decoupling requires the scaling-up of existing sustainable practices and more fundamental transitions in the ways in which we produce, consume and dispose of goods and materials across society. Those transitions are likely to be more effective if supported by long-term, comprehensive, science-based targets that provide the objective basis for future directions and actions. {2.5.1}

The growth in technological innovation since the 1990s has been unprecedented, both globally and historically, bringing many benefits to people's lives, but has also had some negative consequences (*established but incomplete*). Some technological and social innovations can reduce the environmental pressures associated with unsustainable consumption and production. Enhancing access to existing environmental technologies that are adapted to domestic circumstances could help countries to achieve environmental objectives more quickly. Application of precautionary approaches, according to international agreements (where applicable), to new technological innovations can reduce unintended negative consequences for human and ecosystem health. {2.6.2, 2.6.3, 2.6.4}

Countries that prioritize low-carbon, resource-efficient practices may gain a competitive advantage in the global economy (*established but incomplete*). Well-designed environmental policies and appropriate technologies and products can often

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