



# CLIMATE CHANGE AND ENERGY INSECURITY

*The Challenge for Peace, Security and Development*

*Edited by* **FELIX DODDS, ANDREW HIGHAM** and **RICHARD SHERMAN**

*Foreword by* **ACHIM STEINER**

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Felix Dodds, Andrew Higham and Richard Sherman  
with a foreword by Achim Steiner

**earthscan**  
from Routledge

First published by Earthscan in the UK and USA in 2009

For a full list of publications please contact:

Earthscan

2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

711 Third Avenue, New York, NY 10017

*Earthscan is an imprint of the Taylor & Francis Group, an informa business*

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HB ISBN: 978-1-84407-855-4

PB ISBN: 978-1-84407-856-1

Typeset by JS Typesetting Ltd, Porthcawl, Mid Glamorgan

Cover design by John Charles

A catalogue record for this book is available from the British Library

#### Library of Congress Cataloging-in-Publication Data

Climate change and energy insecurity : the challenge for peace, security, and development / edited by Felix Dodds, Andrew Higham and Richard Sherman; with a foreword by Achim Steiner.

p. cm.

Includes bibliographical references and index.

ISBN 978-1-84407-855-4 (hardback) – ISBN 978-1-84407-856-1 (pbk.) 1. Climatic changes—Political aspects. 2. Energy development—International cooperation. 3. Security, International. I. Dodds, Felix. II. Higham, Andrew. III. Sherman, Richard.

QC903.C544 2009

363.7'0526--dc22

2009027987

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# List of Contributors

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**Linda Adams** is secretary of the California Environmental Protection Agency (Cal/EPA). Formerly director of the California Department of Water Resources, she was appointed by Governor Arnold Schwarzenegger in May 2006, making her the first woman to serve as head of the agency. As Cal/EPA's secretary, Adams oversees the environmental activities of the Air Resources Board, California Integrated Waste Management Board, State Water Resources Control Board, Office of Environmental Health Hazard Assessment, Department of Toxic Substances Control, Department of Pesticide Regulation, and the approximately 5000 employees who serve the state's diverse environmental programmes. She is also Governor Schwarzenegger's lead negotiator on AB 32, the Global Warming Solutions Act of 2006, and in this capacity works closely with states, provinces and countries around the world to develop a network of climate initiatives. As secretary, Adams has been instrumental in a number of environmental policies, including launching the Green Chemistry Initiative, which calls for a more comprehensive look at California's chemical policies, accelerating air quality improvement, and the state's bio-monitoring programme, which seeks to link environmental contaminants to human health. Adams has previously served in Governor Davis's administration as director of the Department of Water Resources and as chief deputy legislative secretary. Adams's most notable accomplishments include the Clean Cars/Clean Air legislation, earning her the Environmental Hero Award from the California League of Conservation Voters. Prior to this, she served as a staff member to the State Legislature for 20 years in various positions. She currently serves on the board of directors of the Sacramento Local Conservation Corps and is a long-time resident of Sacramento, California.

**Nnimmo Bassey** is a Nigerian human/environmental rights activist. He is the executive director of Environmental Rights Action (ERA) – Nigeria's foremost environmental rights advocacy group. He is also chair of Friends of the Earth International – the world's largest federation of grassroots organizations fighting for environmental and social justice. Friends of the Earth groups are found in 77 countries. Bassey is a member of the international steering committee of Oilwatch International. He is also a practising architect in Nigeria as well as a published writer and poet.

**Ambassador Stuart Beck** is permanent representative of the Permanent Mission of the Solomon Islands to the United Nations since 2004. Ambassador Beck holds an MA in international relations and South-East Asian politics from the University of Queensland, a foreign services certificate from Oxford University, and a BA in administration and political science from the University of the South Pacific. Ambassador Beck is an avid spokesman for small island states and the severe threats that they face due to climate change.

**Craig Bennett** is a deputy director at the University of Cambridge Programme for Sustainability Leadership (CPSL) and, in this role, is also co-director of The Prince of Wales's Corporate Leaders Group on Climate Change (CLG). In late 2007, he led the CLG's work on the Bali Communiqué, which brought together 150 of the world's largest companies in support of a comprehensive, legally binding United Nations framework to tackle climate change. A year later, he led the work that resulted in the Poznan Communiqué in which companies from Europe, the US, Brazil, India, Japan, China and Australia agreed on some of the key elements needed for a global climate deal. Both initiatives generated significant political interest and media attention. Prior to joining CPSL, Bennett was the head of the Corporates, Trade and Globalization Campaign at Friends of the Earth. He also sat on the executive committee of Friends of the Earth International, the steering group of the Corporate Responsibility Coalition (CORE) and was a board member of the Trade Justice Movement (TJM). He has a BSc (Hons) in Human and Physical Geography and an MSc in Biodiversity Conservation. He is a Fellow of the Royal Geographical Society (FRGS) and a Fellow of the Royal Society of Arts (FRSA). He is also a visiting lecturer at the University of Bristol and the London Business School, sits on the board of Stakeholder Forum (the United Nations Environment Programme (UNEP) National Committee for the UK) and on the editorial board of *Sustainable Business* magazine. He is a member of the Corporate Responsibility Advisory Panel for the retail group Kingfisher.

**Barbara J. Bramble** is senior adviser for international affairs at the National Wildlife Federation (NWF) and a strong advocate to improve US policy regarding climate change, tropical deforestation and unsustainable agriculture production and trade. Over two decades, as the original founder and director of NWF's International Affairs Department, she developed innovative coalitions and grassroots support to reform the World Bank and other multilateral development banks; promote US leadership to reduce the threat of climate change; help to establish voluntary certification systems to promote sustainable forest and agriculture products; and advocate that international trade agreements promote, rather than frustrate, sustainable development. Bramble was a key organizer of the 1992 Earth Summit in Rio de Janeiro and the Rio +5 Conference in 1997. More recently, for four years she worked with Mexican non-governmental organizations (NGOs) to enhance their advocacy and environmental education skills. In her current role as NWF's senior adviser, she is helping to develop international sustainability standards to guide

the burgeoning biofuels industry, serving as chair of the steering board of the Roundtable on Sustainable Biofuels; she is also the immediate past chair of the Forest Stewardship Council in the US. She serves on the boards of several non-profit organizations in Mexico, Brazil and the US. She is an environmental lawyer, and has worked in the Executive Office of the US president, and in private law practice.

**Gidon Bromberg** is the Israeli director of EcoPeace/Friends of the Earth Middle East. Friends of the Earth Middle East is a unique regional organization that brings together Jordanian, Palestinian and Israeli environmentalists to promote sustainable development and advance peace efforts in the troubled Middle East. The organization has offices in Tel Aviv, Bethlehem and Amman, employs 37 paid staff and actively involves hundreds of volunteers. Bromberg founded the organization under the name of EcoPeace in 1994 and has been the Israeli director ever since. In 1997 he led the entry of the organization into Friends of the Earth International. He has spearheaded the advocacy campaigns of the organization both in Israel and internationally, and developed the cross-border community peace-building programme Good Water Neighbours that is seen as a model for other programmes in conflict areas. Bromberg speaks regularly on water, peace and security issues; including at the United Nations Commission for Sustainable Development; before the US House of Representatives, International Relations Committee; the European Parliament; and before the advisory meeting to the United Nations High-Level Panel on Security. In 2007 he was invited to join the prestigious East West Institute's International Task Force for Preventive Diplomacy. He was most recently selected for the 2007 World Fellowship at Yale University on global leadership. Bromberg is a member of the Israeli inter-ministerial committee on the future of the Dead Sea, of the Israel United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Committee and the inter-ministerial Committee for Sustainable Development in Israel. He has published over 20 academic and popular publications concerning Middle East environmental policy and water security issues.

**Stavros Dimas** is a Greek politician and, currently, European Commissioner for the Environment. He worked as a lawyer for the World Bank and Sullivan & Cromwell, a Wall Street law firm. Commissioner Dimas has been elected to the Greek parliament ten consecutive times since 1977 and has held leading posts in Greek politics. From 2000 to 2003 he was senior member of the Political Analysis Steering Committee of New Democracy and in 2004 he was briefly European commissioner for employment and social affairs. Commissioner Dimas has studied law and economics in Athens, Greece, and has an MA in Law from New York University. He considers climate change, preserving biodiversity and fostering eco-innovation to be key priorities for the European Union.

**Jacques Diouf** is director-general of the United Nations Food and Agriculture Organization (FAO). Dr Diouf has held several positions of responsibility in national and international agricultural institutions: director of the European Office and the Agricultural Programme of the Marketing Board (Paris/Dakar); executive secretary of the African Groundnut Council in Nigeria; executive secretary of the West Africa Rice Development Association in Liberia; and adviser to the president and regional director of the International Development Research Centre, Ottawa (Canada). His expertise was put at the service of the executive and legislative branches of the Senegalese government as secretary of state for science and technology in the Cabinet and member of parliament; chairperson of the Foreign Relations Committee and secretary-elect, Dakar (Senegal); and ambassador, Permanent Mission of the Republic of Senegal to the United Nations, New York. He also served as secretary-general and special adviser to the governor of the Central Bank for West African States, Dakar (Senegal). He sat on the boards of a number of international institutions and produced several scientific publications. He has received numerous high awards from governments around the world and various academic recognitions (Doctor Honoris Causa and Membership of Academies of Agriculture and Science).

**Ahmed Djoghlaif** is an Algerian national. He has pursued a distinguished diplomatic career that has included postings with the government of Algeria and UNEP. He assumed the position of executive secretary of the Convention on Biological Diversity (CBD) on 3 January 2006. His previous positions included assistant executive director of UNEP and director and coordinator of UNEP's division of the Global Environment Facility (GEF). He was also the general rapporteur of the Preparatory Committee of the United Nations Conference on Environment and Development (UNCED) (the Rio Earth Summit), vice chairman of the Eleventh Session of the Intergovernmental Committee on Science and Technology for Development, and vice president of the negotiating committee on the Framework Convention on Climate Change. Dr Djoghlaif has also chaired one of the two negotiating committees of the Convention to Combat Desertification (CCD). Prior to joining the United Nations, Dr Djoghlaif held a variety of key posts in the Algerian Ministry of Foreign Affairs. He was adviser on environmental issues to the prime minister of Algeria and, prior to that, to three ministers of foreign affairs of Algeria. He holds the rank of minister plenipotentiary of the Ministry of Foreign Affairs and assistant secretary-general of the United Nations.

**Felix Dodds** is the executive director of Stakeholder Forum for a Sustainable Future (SF). He has been active at the United Nations since 1990, attending the World Summits of Rio, Habitat II, Rio +5, Beijing +5, Copenhagen +5, the World Summit on Sustainable Development (WSSD) and World Summit 2005. He has also been to all of the United Nations Commissions for Sustainable Development and the UNEP Governing Council meetings. He has set up three global NGO coalitions for UN conferences, summits and commissions: the

United Nations Commission on Sustainable Development (1993); UN-Habitat II (1995); and the World Health Organization (WHO) Health and Environment Conference (1999). He co-chaired the NGO coalition at the United Nations Commission on Sustainable Development from 1997 to 2001. He introduced stakeholder dialogues in 1996 through the United Nations General Assembly in November 1996 for Rio +5 and helped to run some of the most successful ones at Bonn Water (2001) and Bonn Energy (2004). He has written or co-edited the following books: *Negotiating and Implementing Multilateral Environment Agreements* (UNEP, 2007); *Human and Environmental Security: An Agenda for Change* (Earthscan, 2005); *How to Lobby at Intergovernmental Meetings: Mine is a Café Latté* (Earthscan, 2004); *Earth Summit 2002: A New Deal* (Earthscan, 2000); *Multi-Stakeholder Process on Governance and Sustainability: The Way Forward – Beyond Agenda 21* (Earthscan, 1997); and *Into the Twenty-First Century: An Agenda for Political Realignment* (Green Print, 1988). He occasionally writes for the BBC Green Room and blogs from film festivals.

**Michael K. Dorsey** is assistant professor in Dartmouth College's Environmental Studies Programme, UK. He is a co-contributor of the recently re-released new edition volume *Climate Change, Carbon Trading and Civil Society: Negative Returns on South African Investments* (Rozenberg Press, The Netherlands, and University of KwaZulu-Natal Press, South Africa, 2008). For more than a decade Dr Dorsey has provided strategic guidance and advice to governments, foundations, firms and a multitude of others on the interplay of multilateral environment policy, finance and economic development matters. In 1992, he was a member of the US State Department Delegation to the United Nations Conference on Environment and Development (Rio Earth Summit). From 1994 to 1996 he was a task force member of President William Jefferson Clinton's Council on Sustainable Development. A member of the Sierra Club ([www.sierraclub.org](http://www.sierraclub.org)) since the mid 1980s, Michael served six years (1997 to 2003) on the club's national board. In 1997, in Glasgow, Scotland, Dr Dorsey was bestowed Rotary International's highest honour: the Paul Harris Medal for Distinguished Service to Humanity. Fluent in Spanish, from 1999 to 2001, Dr Dorsey lived in Ecuador and was a programme director based jointly with the Instituto de Estudios Ecologistas del Tercer Mundo and Acción Ecológica. While at Acción Ecológica Dr Dorsey co-led an initiative to monitor the commercialization of biodiversity in Ecuador as well as the other four countries in the Andean Pact. He is a graduate of the University of Michigan School of Natural Resources and Environment (BSc and PhD), Yale University's School of Forestry and Environmental Studies (MFS) and The Johns Hopkins University (MA). Before joining Dartmouth's faculty, he held the college's Thurgood Marshall Fellowship in Environmental Studies and Geography. Over the years, Dr Dorsey has also held visiting positions at various institutions around the world, including the Rijksuniversiteit Groningen at the Royal University of Groningen (The Netherlands) in 2001; the Department of Regional Planning at the Kungliga Tekniska Högskolan (Royal Institute of Technology, Sweden) in

2002; and the Graduate School of Public and Development Management at the University of Witswatersrand (South Africa) in 2002. From April 2007 until November 2008 Dr Dorsey served as a member of Senator Barack Obama's Energy and Environment Presidential Campaign team. In January 2009 the Ford Foundation recognized Dr Dorsey's ongoing contribution to examining the interplay of finance, environmental policy and social justice concerns with a grant to support his research on how emerging carbon markets shape justice-based climate policies.

**Elizabeth Dowdeswell** was, until recently, president of Canada's Nuclear Waste Management Organization (NWMO). NWMO's initial purpose was to conduct a study and develop a recommendation for the Government of Canada on the long-term management of Canada's used nuclear fuel. Having completed this assignment, she continues as special adviser to the board of NWMO. Dowdeswell has served as executive director of UNEP and undersecretary general of the United Nations, and assistant deputy minister of Environment Canada, responsible for the national weather and atmospheric agency, including negotiating the Framework Convention on Climate Change. She has also led a number of public inquiries into such politically sensitive issues as Canada's unemployment benefits programme and federal water policy. Her early career included terms as deputy minister of culture and youth for the Province of Saskatchewan, educational consultant, university lecturer and high-school teacher. She was appointed one of the first Pierre Elliot Trudeau Foundation mentors, helping to guide the public policy research of Trudeau scholars. She is also a visiting professor in genomics and global health at the Joint Centre for Bioethics, University of Toronto. Dowdeswell is a director on the board of several corporations and contributes in an advisory capacity to a number of not-for-profit organizations, including chairing the Scientific Advisory Committee of the new Council of Canadian Academies.

**Ladeene Freimuth** served as the deputy director of Friends of the Earth Middle East, where she worked on climate change and transboundary water management issues. She is also the founder of a domestic and international energy and environmental consulting firm, the Freimuth Group, LLC. She specializes in policy and strategic advising, lobbying, research and analysis, and project design, implementation and management. Her areas of expertise include renewable energy, energy efficiency, global climate change, alternative fuels and transportation, transboundary water management, and sustainable development. She has worked for 17 years with the US Environmental Protection Agency and the US Agency for International Development, a number of consulting firms and not-for-profit organizations. While working in US Congress, she drafted the first piece of legislation to reduce air and greenhouse gas emissions from stationary power plants. She has also has written major pieces of energy efficiency, renewable energy and alternative transportation legislation. Freimuth received a BA in Government from Wesleyan University and an MA in International Resource Policy and Eurasian Studies from the

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**Sigmar Gabriel** is currently serving as federal minister for the environment and nature conservation and nuclear safety minister in the cabinet of Angela Merkel, Germany. He is a member of German Social Democratic Party. In 1999 he was the minister-president of Lower Saxony and served until 4 March 2003. He held other posts in the Lower Saxony government. In 2008 he acted as president of the Ninth Conference of the Parties to the Convention on Biological Diversity.

**Winston Gereluk** represents Public Services International (PSI) on matters relating to the Commission on Sustainable Development (CSD) and environmental issues, generally. The PSI is an international trade secretariat for public service trade unions, and as such represents millions of public employees around the world. Gereluk has participated in delegations and the production of literature on behalf of the Global Unions at the United Nations CSD and is a member of Greenpeace. He is employed by the Alberta Union of Provisional Employees, an affiliate of the National Union of Public and General Employees in Canada. He also instructs and develops industrial relations courses for Athabasca University in Alberta, Canada.

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**Andrew Higham** is currently Issue Manager supporting global climate change negotiations on technology development and transfer within the United Nations Framework Convention on Climate Change. He was previously an expert with the International Climate Policy Group within the Energy Research Centre of the Netherlands (ECN) where he advised the UNFCCC on finance issues, including the development of the EGTT recommendations on financing options to the AWG-LCA, and on financing indicators for monitoring the implementation of the Convention. He was also a leading Australian adviser in sustainability, climate change, marine and water policy. He co-authored the Western Australian State Sustainability Strategy and the 1998 *State of the Environment Report*, and has led or contributed to a wide range of government policies, strategies, task forces and reports. He has served as the strategies director and vice president of the Australian Conservation Foundation, a ministerial adviser in the fields of science, environment, water and climate change, and has played

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**Steve Howard** is the chief executive officer of The Climate Group, an organization that he co-founded in 2003 to bring together business and government and set the world economy on the path to a low-carbon prosperous future. Howard has worked on global social and environmental issues from within business, NGO and UN settings. He has lead the establishment of the Climate Group in the US, Australia, China, India, Canada and Brussels. He chairs the World Economic Forum's Global Agenda Council on Climate Change and is an adviser to the Virgin Earth Challenge. Prior to his role with The Climate Group, Howard was a partner in the consultancy ERM, where he led on corporate social responsibility. Previously he was the founding director of the Global Forest and Trade Network for the World Wide Fund for Nature (WWF) International and chairman of the 95+ Group. He was also chairman of the UK Forest Stewardship Council, where he helped to achieve a far-reaching consensus on a national forest certification standard, and founding chairman of the Tropical Forest Trust, which he helped establish to deliver ethically sourced tropical timber.

**Nader al Khateeb** holds a BSc in Geological Engineering from the Middle East Technical University in Turkey and an MSc in Environmental Management from the Loughborough University of Technology in the UK. He is the general director of the Water and Environmental Development Organization (WEDO), a Palestinian organization active in the environmental sector. He is also the Palestinian director of Friends of the Earth Middle East, a regional organization that brings together Jordanian, Palestinian and Israeli environmentalists to promote sustainable development of the shared resources in the Middle East. He has over 20 years of experience in water management. Khateeb was a senior water resource engineer with the United Nations Development Programme (UNDP), working as a consultant on the ultimate creation of the Palestinian Water Authority (PWA), and was then a senior water resource engineer with the PWA, coordinating water and wastewater projects. He carried out feasibility studies of the Industrial Waste Management in Hebron, worked with UNESCO to prepare a conceptual Emergency Master Plan for the Bethlehem region and trained municipal engineers in the Gaza Strip on wastewater collection and treatment systems. Khateeb also served as chief engineer for the Bethlehem, Beit Jala and Beit Sahour Water Authority and project manager for their drainage and sewerage project.

**Melinda Kimble** is a senior vice president at the United Nations Foundation and oversees its International Bioenergy Initiative. She joined the United Nations

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**Johan Kuylenstierna** currently works as the chief technical adviser to the chair of United Nations-Water, an interagency mechanism supporting increased collaboration among the 26 United Nations agencies and programmes with water issues as part of their mandate. He is based at the FAO in Rome. He also holds an adjunct professorship at Stockholm University. Johan has previously worked as a project director at the Stockholm International Water Institute, as a senior consultant focusing on corporate social responsibility, corporate core value processes and international stakeholder consultation processes. He also has previous experience from the United Nations system as a scientific officer at the World Meteorological Organization and as a junior professional officer at the Division for Sustainable Development (UNSD) at the United Nations Headquarters in New York. He has worked for many years as a university teacher and has his research background in palaeoclimatology and physical geography.

**Jürgen Maier** has been the director of the German NGO Forum Environment and Development in Berlin since 1996. This network coordinates the participation of Germany's NGOs in international negotiations on sustainable development, such as the United Nations Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity, World Trade Organization (WTO) summits, etc. He is a board member of the Roundtable on Sustainable Biofuels (RSB). Maier was formerly the director of the German Asia Foundation during 1993 to 1996 and international secretary of the Green Party Germany during 1987 to 1991.

**Munqeth Mehyar** received his BA in Regional Planning and Architecture from the University of Louisiana, US, in 1981. In 1994, he co-founded the regional environmental organization EcoPeace/Friends of the Earth Middle East (FoEME). He is chairman of the organization and director of the Amman office, leading FoEME activities concerning the Jordan River, Dead Sea and the Gulf of Aqaba. As chairman, his responsibilities include the supervision of international project development and management; liaison and lobbying

of governmental and private-sector figures on major regional policy issues relevant to environmental protection; development of international contacts and functional partnerships with international environmental and development institutions; and has represented the organization in international and regional forums and conferences. He has also organized dozens of regional conferences, workshops and study tours, has supervised regional research on shared ecosystems and co-authored reports and policy papers. He is on the board of directors of both the Jordan Sports Federation for the Handicapped and the Jordan Royal Ecological Diving Society. He is also founder and director of the Jordan Society for Sustainable Development, an environmental NGO based in Amman. Recently, he received a medal from Al Houssain Distinguished Giving.

**Michael Moore** is currently a project manager at the Stockholm International Water Institute (SIWI), where he has worked since 2005. His main responsibility within SIWI relates to programme coordination of the World Water Week, an annual conference in Stockholm that brings together water experts and professionals around issues related to water and development. Moore also works in the Swedish Water House, specializing in environmental flows, agricultural water management and freshwater ecosystems. He has been involved in the Comprehensive Assessment of Water Management in Agriculture and is currently a steering committee member for the Global Environmental Flows Network. Prior to SIWI, he was based in Brisbane, Australia, as an environmental project management consultant. His technical background is in ecology and land and water processes, with a focus on the riverine systems in western Queensland, Australia.

**Derek Osborn** is the president of Stakeholder Forum. He is also a member of the European Economic and Social Committee and vice president of their Sustainable Development Observatory. Previously, he was director general of the UK Department of the Environment, chairman of the European Environment Agency, and chair or member of several other bodies concerned with sustainable development in the public, private and voluntary sectors. In 1997 he co-chaired the United Nations General Assembly negotiations assessing global progress on sustainable development five years after the Earth Summit in Rio, producing a programme for its further implementation. His book *Earth Summit II: Outcomes and Analysis*, co-authored with Tom Bigg and with a foreword by The Right Honourable Tony Blair, was published by Earthscan in 1998.

**Lucien Royer** is director of the Canadian Labour Congress (CLC) International Department. Until July 2008 he was the health, safety and environment officer for both the Global Unions and the Trade Union Advisory Committee (TUAC) to the Organisation for Economic Co-operation and Development (OECD) where he coordinated programmes throughout the world and represented trade unions at the United Nations, OECD and other intergovernmental bodies

with respect to health, safety and environment. He currently chairs UNEP's Major Group Facilitating Committee. Originally from western Canada, he was involved in environmental litigation and environmental law reform and was a founding member of the Canadian Environmental Network. He formed part of the Canadian government delegation at the European preparatory meeting for the Earth Summit in 1990 and at Rio in 1992. He has led the trade union delegation at UN CSD meetings since 1993.

**Marthinus van Schalkwyk** is minister of environmental affairs and tourism of the Republic of South Africa. He has been a member of parliament since 1990, and from 2002 to 2004 was the premier of Western Cape Province. He lectures in political science at the Rand Afrikaans University and University of Stellenbosch, South Africa. Van Schalkwyk has led the South African delegation to international climate change negotiations since 2004 and currently holds the chairpersonship of the African Ministers Conference on Environment (AMCEN). He is also director of the Business Trust, an initiative that combines the resources of the government and business to create jobs, build capacity and combat poverty.

**Richard Sherman** serves as the programme manager for the International Institute for Sustainable Development Reporting Services' (IISD RS) Africa Regional Coverage Project. He was a former team leader and writer from 2002 to 2005. In addition, Sherman works as a consultant to Stakeholder Forum for a Sustainable Future and the South African Department of Environmental Affairs and Tourism, with a particular focus on institutional reform and global governance. From 1998 to 2001 he was a member of the South African government's climate change delegation and has played an active role in the South African NGO sector since 1995. His previous books were *10 Days in Johannesburg: A Negotiation of Hope*, with Pam Chasek and Chris Spence (UNDP and South Africa's Department of Environmental Affairs and Tourism, 2004); and *Environment and Development Decision Making in Africa 2006–2008* (IISD, 2008). He previously worked for GLOBE and Earthlife Africa, as well as being an active member of the Climate Action Network (CAN).

**Andrew Simms** is currently head of the global economy programme at the think tank the New Economics Foundation (nef) and an adviser to Christian Aid, the overseas development agency. In the past he studied at the London School of Economics and worked in politics for a range of development and environment organizations. In particular, he has been part of campaigns on debt, climate change, food security and genetically modified food, and corporate accountability. He is currently working on a Global Green New Deal.

**Chris Spence** is the deputy director of reporting services at the International Institute for Sustainable Development (IISD) and manages the Climate Change Team for the institute's well-known publication, *Earth Negotiations Bulletin* (ENB). He has written and lectured on climate change for many years and

is the author of *Global Warming: Personal Solutions for a Healthy Planet* (Palgrave Macmillan, 2005).

**Nicholas Stern (Lord Stern of Brentford, Kt, FBA)** is IG Patel Professor of Economics and Government at the London School of Economics (LSE), where he is also head of the India Observatory within the LSE's Asia Research Centre and chairman of the Grantham Research Institute on Climate Change and the Environment. In 2005, he was appointed by the UK government to conduct the influential Stern Review on the Economics of Climate Change. Prior to that he was head of the Government Economic Service and, from 2003 to 2005, Second Permanent Secretary to Her Majesty's Treasury; from 2004 to 2005 he was director of policy and research for the Prime Minister's Commission for Africa. Previously, having held academic posts at the universities of Oxford and Warwick and the LSE, he was then chief economist for the European Bank for Reconstruction and Development and, subsequently, chief economist and senior vice president of the World Bank. Research and publications have focused on the economics of climate change, economic development and growth, economic theory, tax reform, public policy, and the role of the state and economies in transition. He has published more than 15 books and 100 articles. He has served on committees for Oxfam, the Overseas Development Agency (ODA) and the United Nations. He is a fellow of the British Academy (since July 1993) and has Foreign Honorary Membership of the American Academy of Arts and Sciences (since 1998) as well as honorary doctorates from a number of universities, including Warwick and Cambridge.

**Dave Trouba** is head of communications at the Water Supply and Sanitation Collaborative Council (WSSCC) in Geneva, Switzerland. Prior to joining WSSCC in 2008, he worked for ten years at the Stockholm International Water Institute (SIWI), serving as its communications director. He was responsible for the overall communications, marketing and media strategies for SIWI and its various sub-programmes, including the World Water Week in Stockholm. From 1991 to 1998, he was the public information manager at the Water Environment Federation (WEF) in Alexandria, Virginia, US. Upon completing his degree in journalism from Benedictine College in Atchison, Kansas, US, he worked with Communications and Conference Coordination at JT&A, an environmental consulting firm in Washington, DC. His professional philosophy is based on the belief that communications play an important role in bridging the divide between knowledge and action in our efforts to overcome water, sanitation, environment and human development challenges. In his spare time, he co-hosts the radio programme *Think Globally* ([www.thinkgloballyradio.org](http://www.thinkgloballyradio.org)).

# Foreword

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*Achim Steiner, UNEP Executive Director*

The race to mitigate climate change is not just about preserving the environment, it's also about security. The security in knowing that our homes are safe, that we have enough food to eat, and that our water is drinkable. The security in knowing that crops will grow, and that there will still be fish in the sea. The security also that comes with caring for our neighbours – and knowing that they too have food to eat. Because our changing climate is changing more than just the weather, it is changing the way we live.

Inhabitants of small islands are watching their coastlines disappear. Weather changes are affecting plant life, and the diets of the animals and humans who eat those plants. Diminishing water reserves are creating strife between and within countries, causing some populations to migrate. Clearly, relatively minor changes in global temperature have major implications in many aspects of our lives.

Much of the pollution that is behind the causes of climate change is related either directly or indirectly to energy use. But we can't just turn off the switch – energy access is essential to growth and prosperity. If modern society is dependent on abundant energy sources, and if using those sources threatens the planet's future, what kind of future are we looking at? Renewable and sustainable energy resources are not only essential to stabilizing global climate, but also to securing lasting energy resources and energy uses for the millennia to come.

Among other issues, certain energy sources, like fossil fuels, may soon run out. Our dependence on fossil fuels is not only affecting our atmosphere, but it is also destabilizing entire regions. As oil reserves dwindle, competition increases, as does the threat of price wars, and even real wars, over what's left. Even under the most optimistic scenario, the race to find new oil reserves will be a short one. Energy security will become an increasingly important issue, both for the planet and for our own well-being.

This timely publication addresses the multifaceted character of climate change, where each separate element affects other elements, much like the environment itself. Each chapter looks at climate change and energy insecurity

from a different angle, be it energy options, economic changes, biodiversity issues, or many others. It also addresses an important question: how are we going to clean up the mess? What kind of international agreement can be achieved? What kind of frameworks work? Hopefully, the answers to at least some of these questions will be found in Copenhagen in December 2009 as governments meet to seal a new climate deal. This is our chance to move forward towards ensuring that both our climate and our energy sources are as secure as the ground beneath our feet.

*Achim Steiner*  
*United Nations Under Secretary General*  
*United National Environment Programme Executive Director*

# Preface: Tomorrow Is Today

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*Felix Dodds, Andrew Higham and Richard Sherman*

*Reality is merely an illusion, albeit a very persistent one.*  
(Albert Einstein)

Increasingly, climate change policy is being recognized and addressed across the entire multilateral framework. It is no longer the sole province of the United Nations Framework Convention on Climate Change (UNFCCC); yet there remains a vast amount of work to fully mainstream climate change within the multilateral system. Indeed, the peace and security implications of climate change are only just beginning to be acknowledged. This book started out as a contribution to the preparations for the Poznan UNFCCC meeting in 2008. As the authors took stock of the landscape, they felt that it was more important to be seen outside of the UNFCCC meetings. The issues raised in this book are broader than those that are going to be addressed in the climate change negotiations.

## **The challenges**

Climate change is recognized as one of the most important challenges facing the international community. Many eminent politicians have declared climate change as the biggest threat to our civilization; others have suggested that global warming is more of a threat than the traditionally viewed risks to international peace and security. The science is compelling and many of the leading climate change scientists are concerned about abrupt and potentially dramatic climate and other Earth system tipping points, with potentially massive impacts upon life on Earth over centuries and geological time frames that could become irreversible without dramatic technological and behavioural changes beginning now.

In 2007, for the first time, an environmental issue reached the United Nations Security Council. This discussion represented a realization of the political impact of not implementing the agreements at the Rio and Johannesburg Earth Summits. Within the next 10 to 20 years, environment and, in particular, the

climate implications are going to move to become security issues. The authors have addressed both the problems of accelerated energy needs and the impacts that climate change could have upon peace, security and development. The book has also tried to address the global institutional framework that is needed to address the challenges.

## **Part I – Energy Insecurity: Challenges to Future Energy Stability**

In this section of the book authors present various analyses on the challenges facing the international community in meeting future energy demands by highlighting the potential security-related problems that may arise from technological choices, energy uses and, in some cases, land-use choices. The section will aim to contextualize the problems related to both traditional and new energy resources by highlighting areas where conflicts, either localized or global, may arise in the future. This includes a focus on security issues related to the oil and gas, nuclear, biofuels and hydropower sectors, highlighting areas that may cause potential threats to international peace and security, as well as to development. This is not all the challenges we are facing; the section tries also to look at energy access for all and the meeting of the Millennium Development Goals, addressing sustainable consumption and production in the rapidly industrializing development countries, as well as the challenge of moving away from present consumption patterns in industrialized countries to rapidly sustainable consumption patterns.

## **Part II – Climate Insecurity: A Challenge to Peace, Security and Development**

This section of the book presents an overview of the potential security threats and challenges posed by climate change. It addresses a number of key sectoral issues where climate change will lead to elevated concerns to peace, security and development.

## **Part III – Governing Climate and Energy Instability: Avenues for Preventative Diplomacy**

Finally, this section of the book explores the potential avenues and mechanisms available to the international community to address and avert climate and energy instability via the multilateral framework under the United Nations. The chapters in this section address a number of forward-looking options for international governance, and focus on the appropriate forums to discuss and agree on preventative approaches within the current climate and energy frameworks, such as the UNFCCC, the United Nations General Assembly and the Security Council. The section also addresses appropriate mechanisms for the transfer of resources from industrialized to developing countries to avoid the impacts of climate change and to support a sustainable transition away

from climate-polluting development. It also provides an analysis on the steps needed to ensure an energy transition by focusing on the rapid deployment of clean energy technologies and how to address job insecurity created by the transition away from traditional energy sources. The section concludes by outlining the existing avenues where climate and energy insecurity issues can be addressed.

## And then

This book is a companion to *Human and Environment Security: An Agenda for Change*, edited by Felix Dodds and Tim Pippard (Earthscan, 2005).

We believe that we are the first generation who realizes that our personal actions affect, but also contribute to, the sustainability of our planet. We have, perhaps, a short time: 10 to 20 years to redirect the development model that has dominated this period of our lives on this planet. We know that it is destroying options for future generations. On this generation falls the burden of proving to the world that we really mean it when we say that all people are created free and equal and should benefit from the fruits of this planet to ensure that we live in a sustainable way.

We might all wish for an easier challenge, a more tranquil world; but that isn't our lot. If we are to create a sustainable world for all living people and future generations to come, then we must change now, not in 10 to 20 years. Let us hope that Einstein was not right when he said: 'Two things are infinite: the universe and human stupidity; and I'm not sure about the universe.'

## Special thanks

This book would not have been possible without the support of a number of key people whom we would like to give special thanks to: Rob West, Claire Lamont, Jonathan Sinclair Wilson and Sarah Thorowgood at Earthscan; Emily Benson, Ida Bergstrøm, Lianna Hulbert, Sonia Misquitta and Stephen Mooney, from Stakeholder Forum; Panagiota Stylianou and Maria Gerolymatou at the European Commission; Luc Bas from the Climate Group; Eva Lee, James Rydge and Su-Lin Garbett-Shiels from Professor Stern's office; Robin Horwitz from the United Nations Foundation; Ailis Rego at the United Nations Convention on Biological Diversity; Karsten Sachs from the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety; Lisa Pace at the Food and Agriculture Organization (FAO); Erik Haites from Margaree Consultants; Heleen de Coninck and Xander van Tilburg at ECN; Eric Massey and Laurens Bouwer at IVM. We would like to thank UNEP for their support for this book and in particular thanks to John Scanlon and Anne-France White. Finally we would like to thank John Charles the designer of the cover of the book and its companion book, *Human and Environmental Security*.

This book is dedicated to the memory of Joke Waller Hunter (15 November 1946 – 14 October 2005). Joke was a champion for sustainable development. She was the first Director for the Division on Sustainable Development that

services the UN Commission on Sustainable Development, a position in which she served from 1994 until 1998. From 1998 to 2002 she was director of the OECD Environment Directorate. She then joined the UN Framework Convention on Climate Change as Executive Secretary. Joke brought people together and through the first years of the UN Commission on Sustainable Development played a critical role in enhancing stakeholder engagement in the UN system. She is missed by many of us.

The book was inspired by listening to Maurice Strong articulate in Tokyo in 2001 the new challenges that will face us in the future in the area of Environmental Security.

*The important thing is not to stop questioning. Curiosity has its own reason for existing.* (Albert Einstein)

# List of Acronyms, Abbreviations and Other Special Terms

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ACC	Administrative Committee on Coordination (UN Secretary General's Cabinet)
ADB	Asian Development Bank
AIMS	Africa, Indian Ocean, Mediterranean and South China Sea
AMCEN	African Ministers Conference on Environment
AMU	Arab Maghreb Union
Annex I	the 40 countries plus the European Economic Community listed in Annex I of the UNFCCC that agreed to try to limit their GHG emissions (developed countries)
Annex II	the countries listed in Annex II to the UNFCCC that have a special obligation to provide financial resources and facilitate technology transfer to developing countries (Annex II parties include the 24 original OECD members plus the EU)
Annex B	list in the Kyoto Protocol of 38 countries plus the European Community that agreed to QELRCs (emission targets), along with the QELRCs they accepted (the list is nearly identical to the Annex I parties listed in the convention except that it does not include Belarus or Turkey)
AOSIS	Alliance of Small Island States (42 members and 4 observers: American Samoa, Guam, Netherlands Antilles and the US Virgin Islands)
AWG-LCA	Ad hoc Working Group on Long-term Cooperative Action
AWG-KP	Annex I Parties under the Kyoto Protocol
BASD	Business Alliance for Sustainable Development
BAU	business as usual
BEP	Prince of Wales's Business and Environment Programme
BIPP	bankable investment project profile
BREEAM	Building Research Establishment Environmental Assessment Method
BT	British Telecom
BTL	biomass to liquid
bureau	the bureau of a commission is composed of the <i>chair</i> and representatives of the other five <i>regional groupings</i> of member states

°C	degrees Celsius
C40	a grouping of key cities around the world to tackle climate change
CAADP	Comprehensive Africa Agriculture Development Programme
CaCO <sub>3</sub>	calcium carbonate
Cal/EPA	California Environmental Protection Agency
CAN	Climate Action Network
CARICOM	Caribbean Community and Common Market countries (Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago)
CBD	Convention on Biological Diversity
CBI	Confederation of British Industry
CCCI	Cities in Climate Change Initiative
CCD	Convention to Combat Desertification
CCOO	Confederación Sindical de Comisiones Obreras
CCS	carbon capture and storage
CDM	Clean Development Mechanism
CDM EB	Clean Development Mechanism Executive Board
CDP	Carbon Disclosure Project
CDS	chief of defence staff
CEB	United Nations Chief Executives Board
CEE	Central and Eastern Europe
CEIF	Clean Energy Investment Framework
CEO	chief executive officer
CER	certified emission reduction
CFC	chlorofluorocarbon
CGIAR	Consultative Group on International Agriculture Research
CGT	Confederación General del Trabajo
chair	the chair is responsible for facilitating progress in the work of the meeting; in a commission they serve from the end of the previous session until the end of the one that they are chairing (different chairs may be elected for other <i>informal groups</i> )
CHP	combined heat and power
CIF	Climate Investment Fund
CLC	Canadian Labour Congress
CLG	Corporate Leaders Group on Climate Change
CNAS	Center for a New American Security
CNG	compressed natural gas
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> e	carbon dioxide equivalent
COMESA	Common Market for Eastern and Southern Africa
COP	Conference of the Parties (to a convention)
CORE	Corporate Responsibility Coalition
CPF	Carbon Partnership Facility
CPSL	University of Cambridge Programme for Sustainability Leadership

CSD	United Nations Commission on Sustainable Development (53 member state governments make up the commission, which meets annually; observer states and non-members, such as the EU, are also permitted to attend)
CSO	civil society organization
CTF	Clean Technology Fund
CTL	coal to liquid
DCDC	Development Concepts and Doctrine Centre
Defra	UK Department for Environment, Food and Rural Affairs
DFID	UK Department for International Development
DRI	Disaster Risk Index
DTI	UK Department of Trade and Industry
DTIE	United Nations Division of Technology, Industry and Economics
EBRD	European Bank for Reconstruction and Development
EC	European Commission
ECA	United Nations Economic Commission for Africa
ECE	United Nations Economic Commission for Europe
ECN	Energy Research Centre of the Netherlands
ECOSOC	United Nations Economic and Social Council
ECOWAS	Economic Community of West African States
EEPS	Energy Efficiency Portfolio Standard
EEZ	exclusive economic zone
EGTT	Expert Group on Technology Transfer (of the UNFCCC)
EIR	Extractive Industries Review
EIT	economy in transition (predominately refers to countries in Central and Eastern Europe)
<i>ENB</i>	<i>Earth Negotiations Bulletin</i>
EPA	US Environmental Protection Agency
EPOC	Environmental Policy Committee (of the OECD)
ERA	Environmental Rights Action (Nigeria)
EREC	European Renewable Energy Council
EST	environmentally sound technology
ETF-IW	Environmental Transformation Fund – International Window
ETS	Emissions Trading Scheme
ETUC	European Trade Union Confederation
EU	European Union (works as a group at international meetings, in addition to the actions of the European member states present; presidency rotates every six months)
FAO	United Nations Food and Agriculture Organization
FCPF	Forest Carbon Partnership Facility
FDI	foreign direct investment
FIELD	Foundation for Environmental Law and Development
FoEME	Friends of the Earth Middle East
FPSO	floating production storage and offloading
FRGS	Fellow of the Royal Geographical Society
FRSA	Fellow of the Royal Society of Arts

FSC	Forest Stewardship Council
g	gram
G5	Group of Five (Brazil, China, India, Mexico and South Africa)
G8	Group of Eight developing countries of the Northern Hemisphere consisting of Canada, France, Germany, Italy, Japan, Russia, the UK and the US
G77 and China	the Group of 77 and China was the original group of the so-called non-aligned states; it is, in effect, the negotiating bloc of the member countries present and seeks to harmonize the negotiating positions of its 133 developing country members
GCCA	Global Climate Change Alliance
GDP	gross domestic product
GEEREF	Global Energy Efficiency and Renewable Energy Fund
GEF	Global Environment Facility (the World Bank, UNDP and UNEP established the multi-billion dollar GEF in 1990 to fund environmental programmes, especially in the South and in EITs)
GEO4	<i>Global Environmental Outlook 4</i>
GHG	greenhouse gas
GNI	gross national income
GNP	gross national product
GRULAC	Group of Latin America and Caribbean Countries (regional country grouping used within the UN)
Gt	gigatonne
GtC	gigatonnes of carbon
GWh	gigawatt hours
ha	hectare
HDI	Human Development Index
HDR	<i>Human Development Report</i>
high-level segment	ministerial-level part of the meeting where the most significant issues are decided
HLCPC	High-Level Committee on Programmes (within the CEB)
HoCoN	Host Communities Network
HVAC	heating, ventilating and air conditioning
IAASTD	International Assessment of Agricultural Knowledge, Science and Technology
IAEA	International Atomic Energy Agency
IBRD	International Bank for Reconstruction and Development
ICEM	International Federation of Chemical, Energy, Mine and General Workers' Unions
ICESCR	International Covenant on Economic, Social and Cultural Rights
ICFTU	International Confederation of Free Trade Unions
IDA	International Development Association

IDB	Inter-American Development Bank
IEA	International Energy Agency
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IFI	international financial institution
IGAD	Intergovernmental Authority on Development
IIRSA	Infrastructure Integration for the Region of South America initiative
IISD RS	International Institute for Sustainable Development Reporting Services
ILO	International Labour Organization
IMF	International Metalworkers Federation
IMF	International Monetary Fund
intersessional	official between-sessions meeting of one of the commissions
IOM	International Organization for Migration
IOU	investor-owned utility
IPCC	Intergovernmental Panel on Climate Change
IRR	internal rate of return
ISTAS	Instituto Sindical de Trabajo, Ambiente y Salud
ITUC	International Trade Union Confederation
JI	joint implementation
JISC	Joint Implementation Supervisory Committee
JSE	Johannesburg Stock Exchange
JTF	joint task force
km	kilometre
kW	kilowatts
kWh	kilowatt hours
LCFS	Low Carbon Fuel Standard
LDC	least developed country (49 countries)
LDCF	Least Developed Country Fund
LED	light-emitting diode
LIEE	Low-Income Energy Efficiency programme
LSE	London School of Economics
LTMS	long-term mitigation scenario
m	metre
M&S	Marks & Spencer
major groups	term used in Agenda 21 to describe nine sectors of society fundamental to achieving sustainable development (women; children and youth; indigenous people; NGOs; local authorities; workers and trade unions; business and industry; scientific and technological communities; farmers)
MDB	multilateral development bank
MDG	Millennium Development Goal
MEA	United Nations Millennium Ecosystem Assessment
MEA	Multilateral Environmental Agreement
member state	nation that is a member of the United Nations