

# PLANET UNDER PRESSURE

2012 MARCH 26-29  
LONDON

NEW  
KNOWLEDGE  
TOWARDS  
SOLUTIONS

## State of the Planet Declaration



— And their Earth System Science Partnership —

## State of the Planet Declaration citation:

Brito, L., and Stafford-Smith, M. 2012. State of the Planet Declaration. Planet Under Pressure: New Knowledge Towards Solutions conference, London, 26-29 March 2012. Available at: [http://www.planetunderpressure2012.net/pdf/state\\_of\\_planet\\_declaration.pdf](http://www.planetunderpressure2012.net/pdf/state_of_planet_declaration.pdf).

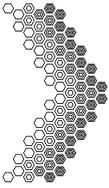
## More information:

[www.planetunderpressure2012.net](http://www.planetunderpressure2012.net)



“The concept of the Anthropocene heralds a profound shift in perception of our place in the world. Given the mounting evidence of the sheer scale of global changes we are witnessing, the scientific community has a responsibility to urge public officials, citizens, and private firms in all countries to focus on the need for major policy changes to avoid irreparable damage to our planet.”

Elinor Ostrom,  
Planet Under Pressure Chief Scientific Advisor  
and Nobel Laureate in Economics, 2009



PLANET  
UNDER  
PRESSURE  
2012 MARCH 26-29  
LONDON

NEW  
KNOWLEDGE  
TOWARDS  
SOLUTIONS



**RIO+20**  
United Nations Conference  
on Sustainable Development

The London Planet Under Pressure conference (26-29 March 2012) – a major international event to provide scientific leadership towards the 2012 UN Conference on Sustainable Development, Rio+20 – brought together 3000 scientists, decision makers, business representatives, journalists and NGOs. It resulted in over 400 articles in the mainstream press worldwide in over 15 languages.

Planet Under Pressure marked a turning point in international Earth-system research towards a programme of research focusing on global sustainability and the beginning of a new contract between science and society.

The conference culminated with the publication of the first **State of the Planet Declaration**.

The declaration is followed by three supporting statements from the conference Board of Patrons (Annex 1), the UN Secretary-General Ban Ki-moon (Annex 2) and young people (Annex 3).

The conference was convened by the international bodies that coordinate global-change research, and the International Council for Science.

DIVERSITAS

International Geosphere-Biosphere Programme

International Human Dimensions Programme on Global Environmental Change

World Climate Research Programme

Earth System Science Partnership

International Council for Science (ICSU)



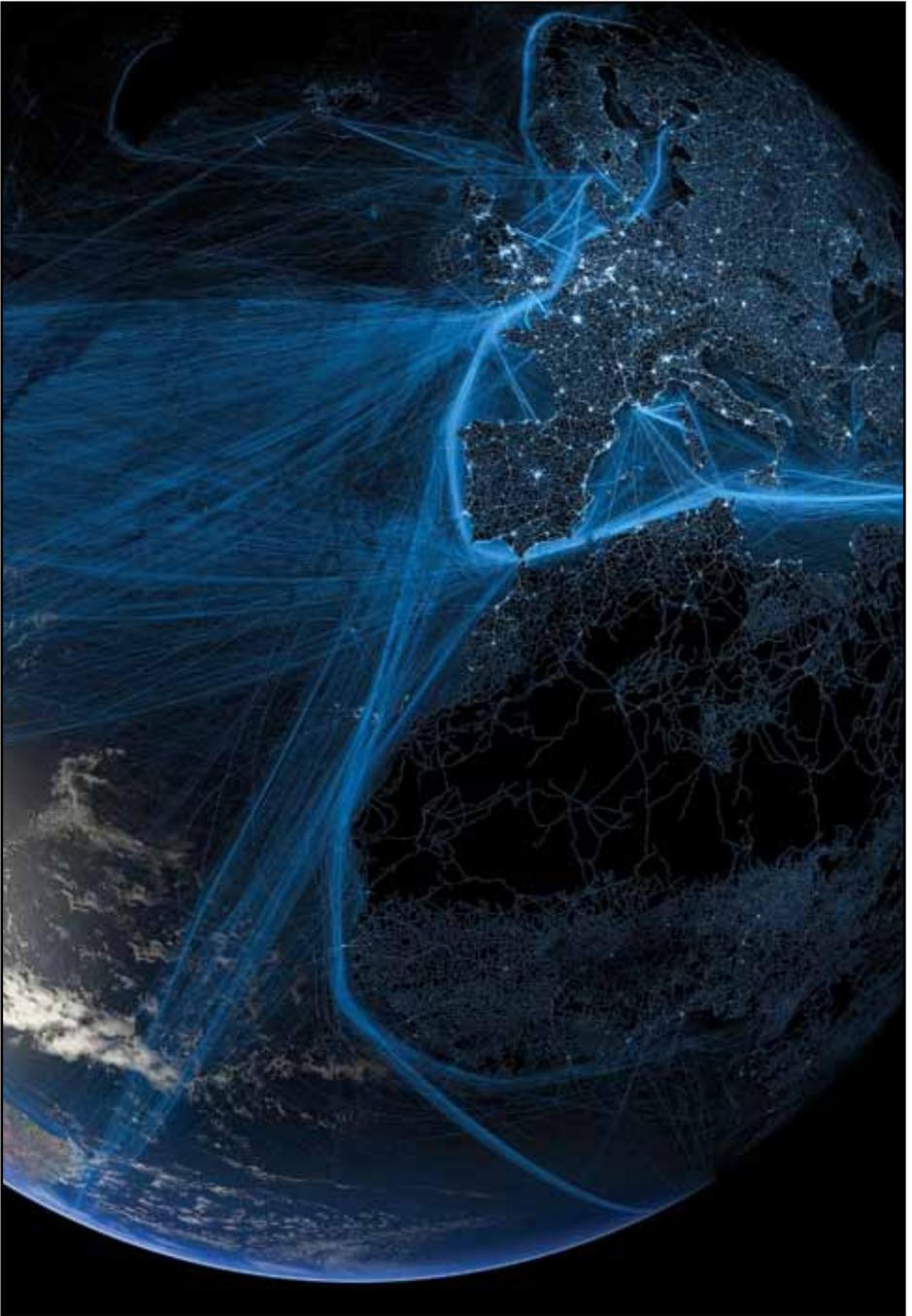
“This is a declaration to our globally interconnected society.”

Lidia Brito and Mark Stafford Smith  
Conference co-chairs

---

The State of the Planet Declaration is by the Co-Chairs of the Planet Under Pressure conference, Dr Lidia Brito and Dr Mark Stafford Smith, supported by the conference Scientific Organizing Committee (page 17).

We believe this statement reflects the key messages emerging from the proceedings of the Planet Under Pressure conference.



# State of the Planet Declaration

---

1. Research now demonstrates that the continued functioning of the Earth system as it has supported the well-being of human civilization in recent centuries is at risk. Without urgent action, we could face threats to water, food, biodiversity and other critical resources: these threats risk intensifying economic, ecological and social crises, creating the potential for a humanitarian emergency on a global scale.
2. In one lifetime our increasingly interconnected and interdependent economic, social, cultural and political systems have come to place pressures on the environment that may cause fundamental changes in the Earth system and move us beyond safe natural boundaries. But the same interconnectedness provides the potential for solutions: new ideas can form and spread quickly, creating the momentum for the major transformation required for a truly sustainable planet.
3. The defining challenge of our age is to safeguard Earth's natural processes to ensure the well-being of civilization while eradicating poverty, reducing conflict over resources, and supporting human and ecosystem health.
4. As consumption accelerates everywhere and world population rises, it is no longer sufficient to work towards a distant ideal of sustainable development. Global sustainability must become a foundation of society. It can and must be part of the bedrock of nation states and the fabric of societies.
5. The Global Environmental Change Programmes<sup>1</sup> with the International Council for Science convened the Planet Under Pressure: New Knowledge Towards Solutions conference to assess the state of the planet and explore solutions to impending global crises. The conference brought together nearly 3000 leading experts and decision-makers to discuss global challenges and offer new solutions. And at least 3000 people across the world participated in the conference online.

---

<sup>1</sup> DIVERSITAS, Earth System Science Partnership, International Geosphere-Biosphere Programme, International Human Dimensions Programme on Global Environmental Change and World Climate Research Programme.

## A. New Knowledge

6. Humanity has taken a huge leap and become a planetary-scale force. Significant changes have occurred since the 1950s, and the rate of change is accelerating. Researchers observe unsafe levels of pollution, ecological change and resource demand, with potentially catastrophic consequences for our global civilisation.
7. The past decade has seen the emergence of important areas of new scientific understanding by which to define what we are witnessing:
  - A1. Humanity's impact on the Earth system has become comparable to planetary-scale geological processes such as ice ages. Consensus is growing that we have driven the planet into a new epoch, *the Anthropocene*, in which many Earth-system processes and the living fabric of ecosystems are now dominated by human activities. That the Earth has experienced large-scale, abrupt changes in the past indicates that it could experience similar changes in the future. This recognition has led researchers to take the first step to identify planetary and regional thresholds and boundaries that, if crossed, could generate unacceptable environmental and social change.
  - A2. The Earth system is a complex, interconnected system that includes the global economy and society, which are themselves highly *interconnected and interdependent*. Such systems can confer remarkable stability and facilitate rapid innovation. But they are also susceptible to abrupt and rapid changes and crises, such as global financial meltdowns or the volatility of the global food system.
  - A3. Assessments of current mechanisms for *governing global environmental change* show why existing international arrangements are not dealing quickly enough with current global challenges such as climate change and biodiversity loss. There is growing evidence that diverse partnerships amongst local, national and regional governments as well as business and civil society provide essential safety nets should singular global policies fail – a polycentric approach for planetary stewardship.
8. These insights from recent research demand a new perception of responsibilities and accountabilities of nation states to support planetary stewardship. This requires goals aimed at global sustainability in order to achieve universal sustainable development. A crucial transformation is to move away from income as the key constituent of well-being and to develop new indicators that measure actual improvements in well-being at all scales. Equity in opportunities to improve well-being and eradication of poverty at the individual level will also play pivotal roles in the transition towards planetary stewardship.

## B. New Solutions

9. Interconnected issues require interconnected solutions. Rapid scientific and technological progress can provide potential solutions – if adopted in timely manner – to reduce the risk of deleterious consequences for societies everywhere. But technological innovation alone will not be enough. We must also transform our values, beliefs and aspirations towards sustainable prosperity.
10. Research plays a significant role in monitoring change, determining thresholds, developing new technologies and processes, and providing solutions. The international global-change research community proposes a new contract between science and society in recognition that science must inform policy to make more wise and timely decisions and that innovation should be informed by diverse local needs and conditions. This contract needs to encompass three elements:
  - B1. Integrated goals for *global sustainability* based on scientific evidence are needed to provide essential targets for societies. In support of this, the international scientific community calls for a framework for regular global sustainability analyses that link existing assessments and build on the foundations of the Intergovernmental Panel on Climate Change, Intergovernmental Platform on Biodiversity and Ecosystem Services and other ongoing efforts. Such analyses can be designed to bring coherence to the science-policy interface.
  - B2. The challenges facing a planet under pressure demand *a new approach to research* that is more integrative, international and solutions-oriented. We need to link high-quality focused scientific research to new policy-relevant interdisciplinary efforts for global sustainability. This research must integrate across existing research programmes and disciplines, across all domains of research as well as local knowledge systems, across the North and South, and must be co-designed and implemented with input from governments, civil society, research funders, and the private sector. As part of this new collaboration, at this conference the global-environmental-change programmes support a major research initiative, *Future Earth: research for global sustainability*.
  - B3. *New mechanisms* to facilitate an interactive dialogue on global sustainability among the various stakeholders and the policy-making community at different scales. Such interactions should be designed to bring societal relevance and trust to science-policy interfaces, and more effectively inform decision-making to keep pace with rapid global change.

11. To these ends, the initiatives above must be supported by:

- A greater commitment to fund and support capacity-building in science and education globally, and particularly in developing countries.
- A strong commitment to both applied and pure research and increased efforts to bring together disciplines, across all research domains.
- Strengthened support for observing systems, particularly in developing countries, including the new observations needed to support decision-making for global sustainability. New approaches should fully integrate global observing systems for environmental and social issues.
- Continued exploration of new areas of knowledge, such as theoretical and applied research in behavioural science and economics addressing ecological and social tipping points and irreversibility at multiple levels.

## C. New Opportunities: Science in Support of Rio+20

12. The United Nations Rio+20 Conference is an opportunity the world must seize at this crucial juncture. The UN Secretary-General's Global Sustainability Panel report, *Resilient People, Resilient Planet*, provides a strong strategic framework for a sustainable future while calling for a marked strengthening of the interface between science and policy. The findings of the Planet Under Pressure conference support the key recommendations including:

- C1. *Fundamental reorientation and restructuring* of national and international institutions is required to overcome barriers to progress and to move to effective Earth- system governance. Governments must take action to support institutions and mechanisms that will improve coherence, as well as bring about integrated policy and action across the social, economic and environmental pillars. Current understanding supports the creation of a Sustainable Development Council within the UN system to integrate social, economic and environmental policy at the global level. There is also strong support for strengthening global governance by including civil society, business and industry in decision-making at all levels.

- C2. A commitment to the proposal for universal Sustainable Development Goals is needed, as *goals for Global Sustainability*. These should be developed to take account of the synergies and trade-offs in and between areas such as food, water and energy security, maintenance of biodiversity and ecosystem services, sustainable urbanisation, social inclusion and livelihoods, protection of seas and oceans, and sustainable consumption and production. The research community should be involved in the development of goals, targets and indicators, recognising interconnected issues and building on existing measures of well-being. They should apply to all levels of governance.
- C3. Recognition of the monetary and non-monetary *values of public goods* such as ecosystem services, education, health and global common resources such as the oceans and the atmosphere. These must be properly factored into management and decision-making frameworks at the national and sub-national levels to ensure that economic activities do not impose external costs on the global commons. Corrective measures that internalize costs and minimize the impacts on the commons need to be identified and implemented through regulatory and market-based mechanisms.

## 2012: A Defining Moment in History

13. Our highly interconnected global society has the potential to innovate rapidly. The Planet Under Pressure conference has taken advantage of this potential to explore new pathways. It has marked a new direction for global change research. The international scientific community must rapidly reorganize to focus on global sustainability solutions. We must develop a new strategy for creating and rapidly translating knowledge into action, which will form part of a new contract between science and society, with commitments from both sides.
14. Society is taking substantial risks by delaying urgent and large-scale action. We must show leadership at all levels. We must all play our parts. A strong contribution from all stakeholders should make the UN's Rio+20 conference a defining moment that sparks global innovation to move us towards a sustainable future. We urge the world to grasp this moment and make history.



# ANNEX 1

## SUPPORTING STATEMENT FROM THE BOARD OF PATRONS

### Planet Under Pressure

#### **The Board of Patrons welcomes and endorses the conference statement.**

The human species is degrading the environment at all spatial scales, from local to global. Scientific understanding of environmental deterioration has improved and deepened since the Rio Earth Summit in 1992, but society has failed to address environmental degradation at a scale the problems require. We have to manage the planet as the biophysical system that it is and for all the promise that it holds. The survival of our societies, our civilization and our cultures are dependent on a stable climate, natural resources and ecosystem services. We have become a force of nature, but individually we continue to be vulnerable. Business-as-usual is not an option. The time for action is now.

This conference comes at a time when there is much turmoil in the globalized economy, uncertainty in the consequences of the financial crisis and political developments in many parts of the world, and the international community's capacity to deal with conflicts. But we must not allow these difficulties to overshadow addressing the dangers of environmentally destructive human activities.

This is also a time when there are great hopes to reduce poverty and inequality, improve livelihoods and advance knowledge in a world where new information and communication technologies are revolutionizing old structures and opening new avenues for democracy and international cooperation.

But let's be honest. While some progress has been made in addressing global environmental issues, poverty alleviation and food, water, energy and human security, the scale of actions has not been commensurate with the scale of the problems. The issues to be debated at Rio+20 are the same as those identified 20 years ago, but it is now even more urgent to address them.

It is critical to recognize that GDP is an inadequate measure of sustainable economic activity and that we need to complement it with a much better measure of the wealth of a nation, i.e., built, financial, social, human and natural capital. We support the concept of a green economy that recognizes the inter-

connectivity of economic, environmental and social sustainability. Reforms of governance structures at all scales are critically needed to make sustainable development a reality.

The attendees at this conference have generated a number of concrete and innovative ideas for transitioning to a more economically, socially and environmentally sustainable and equitable world, creating new investment opportunities, new ways of solving societal problems, and improving the living conditions for men and women all over the world for this and future generations.

We need political will and capacity supported by the private sector, civil society and the academic community working together. Close partnerships are needed to strengthen the flow of ideas and knowledge, and to promote concrete cooperative action. There is no time to lose.

### **Description of the Planet Under Pressure Board of Patrons**

One of the principal aims of the conference was to bring together professionals from science, industry, finance, policy, technology, engineering, media and development to jointly discuss solutions to the pressures on the planet. In order to help ensure that the Conference met the needs of these wide-ranging stakeholder communities and to help highlight its importance and relevance to them, the conference co-Chairs established a **Board of Patrons**. The Board of Patrons comprised of 18 leading figures including CEOs, senior politicians and opinion formers to help promote the event.

# ANNEX 2

---

## SUPPORTING STATEMENT FROM THE UN SECRETARY-GENERAL, BAN KI-MOON



Your Excellency Mr. David Willetts, Minister of State for Universities and Science of the United Kingdom,

Dr. Irina Bokova, Director-General of UNESCO,

Dr. Lidia Brito and Dr. Mark Stafford Smith, Conference Co-Chairs,

Ladies and Gentlemen and all those joining this event by webcast,

I welcome the initiative of the International Council of Science and the global research programmes that have worked together to organize this conference.

Climate change, the financial crisis and food, water and energy insecurity threaten human well-being and civilization as we know it.

The scientific community can help us make sense of these complex and interconnected challenges, including by strengthening our understanding of “planetary boundaries” and “critical thresholds”.

The Intergovernmental Panel on Climate Change is just one example of what we can do together.

But policy makers often fail to turn to scientists for advice, or discount it too easily owing to electoral or other political considerations.

At the same time, scientific advice is sometimes unclear or even contradictory. Scientists themselves often work in silos, ignoring broader factors.

My High-level Panel on Global Sustainability has just recommended that I consider naming a chief scientific adviser or establishing a scientific board to advise me and other organs of the United Nations.

As I take this recommendation forward -- with support from Director-General Bokova -- I also intend to engage the scientific community on other projects, such as the Global Sustainable Development Outlook report.

I am also ready to work with the scientific community on the launch of a large-scale scientific initiative.

I welcome the State of the Planet declaration issued today by the Co-chairs of this conference. Its timing, two months before the UN Conference on Sustainable Development, could not be better. Rio+20 is a major opportunity to advance the policy-science interface.

I look forward to working with the scientific community towards a more coherent, science-based and effective approach to today's global challenges.

Thank you.

Ban Ki-moon  
UN Secretary-General

# ANNEX 3

## SUPPORTING STATEMENT FROM YOUNG PEOPLE REPRESENTING THE VOICE OF YOUTH

Dear leaders of the world,

We are young delegates to the Planet Under Pressure conference, and we ask you for concrete action based on the scientific knowledge of global challenges outlined in the State of the Planet declaration from the conference.

Problems of environment, economics, equity and social justice are intrinsically linked. Any action addressing one affects them all. Science (including social science) can help to identify solutions, but citizen engagement is vital for solutions to work. Where solutions exist that improve all of them, we ask you to implement them. If they have already been implemented, we ask you to enforce them. Where solutions exist that address one at the expense of the others, we ask you to rethink them.

Where solutions for environmental, economic, and societal problems conflict, we commit to finding better solutions. To start, we propose the following:

- Replace GDP with a metric that also incorporates environment and social equity
- Remove barriers for developing countries to have more voice and decision-making power in international dialogues
- Reform market mechanisms to allow participation in decision-making from stakeholders at all scales
- Offer financial incentives to young eco-social entrepreneurs and social and environmental researchers, especially in developing countries
- Regulate open access to knowledge in all arenas of business, policy, and science
- Transition from short-term projects to long-term programs for education and sustainability-oriented decision-making
- Make the sustainable development activities of business and government more accountable to citizens

We promise to:

- Make science more accessible and translatable across sectors and interests so that it can be used for policy making and long term business decisions that will ultimately drive a sustainable society
- Expand trans-disciplinary research and engage with user communities in efforts to develop integrative solutions for sustainability

These lists are incomplete, but they are a good place to start. You will have to take hard positions against vested interests standing in the way of such decisions. We, your constituents, support you in this. You the decision-makers and we the citizens must stand together to achieve a stable and sustainable future for our children and for future generations.

Around 400 students were involved in the development of this statement, which also acknowledges the views expressed by the UK school children who spoke at the opening ceremony.

# Scientific Organizing Committee

## Elinor Ostrom

(Conference Chief Scientific Advisor)  
2009 Nobel Prize in Economic Sciences in  
Memory of Alfred Nobel, Indiana University,  
USA

## Lidia Brito (Co-chair)

Director Science Policy and Capacity Building  
(Natural Sciences), UNESCO, France and  
Mozambique

## Mark Stafford Smith (Co-chair)

Science Director, Climate Adaptation Flagship,  
CSIRO, Australia

## Andrew Bennett

President of the Tropical Agricultural  
Association (UK). Chair of the Boards of  
Trustees of the Centre for International  
Forestry Research, Chair of SciDev.Net, UK

## Raymond Bradley

International Geosphere-Biosphere  
Programme, USA

## Sandra Diaz

DIVERSITAS, Argentina

## Felix Dodds

Executive Director, Stakeholder Forum for a  
Sustainable Future, UK

## Rowan Douglas

CEO Global Analytics, Willis Re; Chairman,  
Willis Research Network, UK

## Nadia El-Awady

Journalist, Board member of World Federation  
of Science Journalists, Egypt

## Vesile Kulaçoğlu

Director of the World Trade Organization's  
(WTO) Trade and Environment Division

## Rik Leemans

Earth System Science Partnership,  
Netherlands

## Adebayo Olukoshi

Professor of International Economic Relations  
and Director, African Institute for Economic  
Development and Planning, Senegal

## Johan Rockström

Director, Stockholm Resilience Centre,  
Co-chair Future Earth Initiative, Sweden

## Priya Shyamsundar

Program Director, South Asian Network for  
Development and Environmental Economics,  
Nepal

## Ilana Wainer / David Griggs

World Climate Research Programme,  
Brazil / Australia

## Oran Young

International Human Dimensions Programme  
on Global Environmental Change, USA

## Guoguang Zheng

Professor of Atmospheric Physics and Director,  
Chinese Meteorological Administration and  
member of the UN Secretary-General's panel  
on Global Sustainability, China

# Ex-officio Members

Ghassem Asrar /  
Roberta Boscolo  
World Climate Research Programme

Wendy Broadgate  
(Secretary) International Geosphere-  
Biosphere Programme

Deliang Chen /  
Carthage Smith /  
Gisbert Glaser  
International Council for Science

Anantha Duraiappah /  
Deborah Rogers /  
Leisl Neskakis  
International Human Dimensions Programme  
on Global Environmental Change

Owen Gaffney  
(Communications Committee)  
International Geosphere-Biosphere  
Programme

Richard Hart  
(Coordinator)  
Elsevier, UK

Ada Ignaciuk /  
Martin Rice  
Earth System Science Partnership

John Ingram  
(Local Organising Committee)  
NERC / University of Oxford, UK

Anne Larigauderie /  
Anne-Helene Prieur-Richard  
DIVERSITAS

Peter Liss  
(Local Organising Committee)  
The Royal Society, UK

João Morais  
(Fundraising Committee)  
International Geosphere-Biosphere  
Programme

Patricia Pinho  
International Geosphere-Biosphere  
Programme Brazilian Regional Office

Sybil Seitzinger  
International Geosphere-Biosphere  
Programme

Karen Smyth  
(Board of Patrons Liaison, Session Support)  
International Geosphere-Biosphere  
Programme

# Board of Patrons

## Joseph Alcamo

Chief Scientist of the United Nations  
Environment Programme (UNEP)

## Sir John Beddington

UK Government's Chief Scientific Advisor

## Phil Bloomer

Director of Campaigns and Policy, Oxfam

## Keith Clarke CBE

Director of Sustainability, Atkins, UK

## Rowan Douglas

Willis-RE, UK

## Colin Drummond

Chairman LWEC Business Advisory Board &  
Chief Executive Viridor

## Tim Flannery

Panasonic Professor of Environmental  
Sustainability at Macquarie University

## Peter Kareiva

Chief Scientist and Vice President,  
The Nature Conservancy

## Bo Kjellen

Chair of the 1992 Earth Summit Preparatory  
Committee, Sweden

## Sir Christopher Llewellyn Smith

Oxford University, UK

## Thomas Lovejoy

Heinz Center, USA

## Julia Marton-Lefèvre

Director General, International Union for  
Conservation of Nature (IUCN)

## Pascal Mittermaier

Head of Sustainability EMEA, Lend Lease

## Sunita Narain

Director, Centre for Science and Environment,  
India

## Rudy Rabbinge

Wageningen University, The Netherlands

## Jan-Eric Sundgren

Senior Vice President Public and  
Environmental Affairs, AB Volvo

## Lord Turner

Chairman of the Climate Change Committee,  
UK

## Sir Robert Watson

Defra Chief Scientific Advisor, UK





"I welcome the State of the Planet declaration. Its timing, two months before the UN Conference on Sustainable Development, could not be better. I look forward to working with the scientific community towards a more coherent, science-based and effective approach to today's global challenges."

UN Secretary-General  
Ban Ki-moon



UN Photo/Eskinder Debebe



And their Earth System Science Partnership

[www.planetunderpressure2012.net](http://www.planetunderpressure2012.net)

**For more information contact:**

Owen Gaffney  
International Geosphere-Biosphere Programme  
owen.gaffney@igbp.kva.se  
Tel: +46 86739556