

## **Statement by International Senior Scientific Advisers Ahead of COP26**

The scientific case for urgent climate action is unequivocal. The IPCC's Sixth Assessment Report *Climate Change 2021: The Physical Science Basis* showed there is no doubt human activity has warmed the ocean, atmosphere and land and the world is now 1.09°C warmer than it was in the early industrial era. Sea levels are rising, while weather extremes and their impacts such as heatwaves, excess rainfall, wildfires, flooding and droughts are more intense and more frequent. Climate modelling indicates that with every fractional increase in warming, these effects will get worse with all countries vulnerable.

The latest science tells us it is still possible to limit warming to 1.5°C by the end of the century, but only with steep reduction in global emissions by 2030 and if we reach global net zero around 2050, based on targets defined by Nationally Determined Contributions. Stabilising the climate would limit the increase of sea-level rises and probability of extreme weather events. It would improve prospects for prosperity, and protect the health of humans and natural ecosystems. It will require rapid, urgent and sustained action and significant behavioural, socioeconomic and technological transformations across the world. This must begin with rapid scale up and deployment of a wide range of existing and novel technological solutions.

Successfully mitigating climate change also requires intense international collaboration on research and innovation to develop and deliver new solutions across all sectors of the global economy. There is an urgent need for enhanced methods of creating, storing and using low-emissions energy – including improving semiconductors, batteries and low-emitting fuel production – as well as work on heating and cooling, and carbon capture and storage. More efficient, innovative and environmentally friendly methods in agriculture, industry, building and transport are also required. Further work is necessary to enhance our understanding of the interactions between biodiversity, ecosystems and climate change, to protect the natural world from further biodiversity loss and maximise its ability to store carbon. Actions should be practical and people-centred so that global transitions can be fast, efficient, equitable, respectful, affordable and inclusive. It will require investment, but immediate benefits and progress towards UN Sustainable Development Goals are achievable, including improved air quality, human health, energy security and economic opportunities. In the long term, the costs of inaction far outweigh the costs of action.

In parallel, adapting to the consequences of climate change is critical. Even at 1.5°C, essential systems will be affected, such as housing, transport, healthcare, food and water supplies, with effects greater on already vulnerable populations. Adaptation efforts today will help ensure the continued safety, security and prosperity of our communities and industries. This requires continued support for foundational research to produce accurate and timely climate models at the local, national and international level. It also requires wide-ranging research and innovation to deepen understanding of the human, political, environmental and economic impacts of climate change and enable creation of locally-led plans and actions to counter or cope with these impacts.

In November this year, Parties to the UNFCCC will come together at COP26 in Glasgow. We call on their researchers, industry leaders, policymakers and political leaders to work with communities to:

### **Develop ambitious scientific evidence-based Long-Term Strategies which demonstrate efforts to keep the 1.5°C temperature goal alive. These should:**

- Focus on the policies and requirements – technological, socioeconomic, and financial – to pilot and scale up existing decarbonisation solutions over the next decade which will help to achieve near-term targets and Nationally Determined Contributions, while assisting in keeping 1.5°C within reach.
- Include plans to accelerate development and deployment of next-generation decarbonisation solutions that are not yet affordable, effective or available.
- Contain clear pathways for achieving emissions reductions targets, detailed sectoral policies, regular reviews of progress, and be updated as appropriate to reflect scientific and technological developments.
- Enable just transitions for sectors and communities in diverse contexts, and reflect the roles and choices of all actors and stakeholders in the green transition.

### **Increase international collaboration to accelerate research, development, demonstration and deployment of effective mitigation and adaptation solutions. These should:**

- Build on and strengthen existing international initiatives.
- Be outcomes-focused, with regular reviews of progress, and backed by appropriate funding and staffing.
- Facilitate sharing of expertise, indigenous knowledge, and data, creating an evidence-base that helps all countries deploy existing mitigation and adaptation solutions in a locally-appropriate manner, informed by the voices of the vulnerable and marginalised.

### **Establish programmes to strengthen global research and innovation capacity. These should:**

- Build on the range of existing initiatives to align and expand research and innovation capacity, supporting direct participation and access to innovation at all levels and across all sectors.
- Be backed by efficient financial frameworks and technology transfer systems.
- Promote greater use of evidence in decision making and support development of efficient, scalable, affordable and inclusive innovations.

Signed:

**Professor Paulo Artaxo**

Professor of Environmental Physics, Institute of Physics, University of São Paulo, Brazil  
Member of IPCC



**Dr Asha Dookun-Saumtally**

Vice President, Mauritius Academy of Science and Technology

**Professor Rajaâ Cherkaoui EL MOURSI**

Member of Hassan II Academy of Science and Technology, Morocco  
Vice President, Board of the Network of African Science Academies



**Professor Mark W. J. Ferguson**

Director General, Science Foundation Ireland  
Chief Scientific Adviser to the Government of Ireland



**Professor Dame Juliet A. Gerrard DNZM Hon FRSC FRSNZ**

New Zealand Prime Minister's Chief Science Advisor  
Kaitohutohu Mātanga Pūtaiao Matua ki te Pīrimia

Juliet Gerrard

**Professor Nicole Grobert**

Chair of the Group of Chief Scientific Advisors to the European Commission



**Professor Johan Kuylenstierna**

Adjunct Professor and Senior Advisor to the President, Stockholm University  
Chair, Swedish Climate Policy Council



**Professor Jürg Luterbacher**

Chief Scientist, World Meteorological Organization



**Professor Arturo Menchaca-Rocha**

General Coordinator, Consejo Consultivo de Ciencias (CCC), México



**Professor Ekanem Braide FAS**

President, The Nigerian Academy of Science



**Professor Jerzy Duszynski**

President, The Polish Academy of Sciences



**Dr Xavier Estico**

Director General, Division of Science Technology and Innovation, Seychelles Ministry of Investment, Entrepreneurship and Industry



**Dr Cathy Foley**

Australia's Chief Scientist




**Professor Pascal O. Girot**

Director, School of Geography, University of Costa Rica



**Dr Saleemul Huq**

Director, International Centre for Climate Change and Development  
Independent University Bangladesh



**Dr Eric S. Lander**

Science Advisor to the President of the United States of America and Director of the Office of Science and Technology Policy



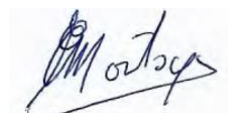
**Professor Ishmael Masesane PhD, FRSC**

President, Botswana Academy of Science



**Professor Modesto Montoya**

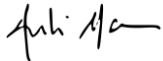
Presidential Adviser on Scientific Matters, Peru



**Desamanya Professor Mohan Munasinghe**  
Vice Chair, Intergovernmental Panel on Climate Change  
Chairman, Presidential Expert Commission on Sustainable Sri Lanka 2030 Vision



**Professor Antonio Navarra**  
Full Professor, Meteorology & Oceanography  
University of Bologna, Italy  
President, Fondazione Centro EuroMediterraneo sui cambiamenti Climatici (CMCC)



**Professor Walter O. Oyawa**  
Director General/CEO  
National Commission for Science, Technology and Innovation, Kenya



**Professor Rafael Radi, MD, PhD**  
Director, Centro de Investigaciones Biomédicas,  
Universidad de la República, Uruguay  
President, Academia Nacional de Ciencias del Uruguay

**Professor Filipe Duarte Santos**  
President, National Council on Environment and Sustainable Development, Portugal



**Professor Tarmo Soomere**  
President of the Estonian Academy of Sciences  
Chair of the European Science Advisors Forum



**Marianne Thyrring**  
Director General, Danish Meteorological Institute



**Sir Patrick Vallance**  
UK Government Chief Scientific Adviser



**Dr Jose Ramon Villarin SJ PhD**  
Director, Manila Observatory, Philippines



**Leonardo Muñoz**  
Head of Science and Government, Ministry of Science, Technology, Knowledge and Innovation, Chile



**Dr Mona Nemer, C.M., C.Q., FRSC, FCIC**  
Chief Science Advisor of Canada  
Conseillère scientifique en chef du Canada



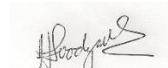
**Professor Costas N. Papanicolas**  
President of The Cyprus Institute  
Advisor to the President of the Republic of Cyprus and Special Envoy for Climate Change



**Dr Victor A. Ramos**  
President National Academy of Exact, Physical and Natural Sciences of Argentina



**Professor Himla Soodyall**  
Executive Officer of the Academy of Science of South Africa



**Professor Marcel Tanner**  
President Swiss Academies of Arts and Sciences



**Professor Ion Tiginyanu**  
President of the Academy of Sciences of Moldova



**Professor K. VijayRaghavan**  
Principal Scientific Adviser to the Government of India



**Dr Takahiro UEYAMA**  
Full-Time Executive Member, Japanese Council for Science, Technology and Innovation



**Professor Kavwanga E.S. Yambayamba, PhD,**  
**FZaAS, FAIZ, JP**  
President, Zambia Academy of Sciences



**Professor Han Woong Yeom**  
Vice-Chairman, Presidential Advisory Council on Science  
and Technology, Republic of Korea

