# Systems Analysis
# Applied to Environment and Health

## Friday, 2 December 2016
## The Royal Society, Kohn Centre, Carlton House Terrace, London, SW1Y 5AG

### Agenda

*What are the latest developments in systems analysis and modelling? Where will future advances be made? What are the policy areas to which systems analysis can be applied? And, what are the opportunities and pitfalls of engaging decision-makers with systems analysis?*

*This conference will explore these questions, among others, with a focus on the environment, health, and international issues. Its aim is to share good practice and stimulate research and collaboration on applying leading edge modelling and systems approaches to issues of scientific and policy interest. The event will be of interest to researchers and decision-makers concerned with these, and related, areas.*

**09:30 – 10:00**  Arrival and Registration with Refreshments

**10:00 – 10:05**  Welcome and Introduction by Professor Alex Halliday (Vice President and Physical Secretary of the Royal Society)

**10:05 – 10:40**  Opening Remarks

**IIASA and UK Research by Professor Duncan Wingham** (Chief Executive of the Natural Environment Research Council (NERC))

**IIASA: Research Highlights and UK Partnership by Professor Dr. Pavel Kabat** (Director General and Chief Executive Officer, International Institute for Applied Systems Analysis (IIASA))

*Followed by Question and Answer Session*

**10:40 – 11:30   Panel Session: "Air Quality"**

Poor air quality is a major problem facing many countries around the world, with serious negative impacts for people's health, agriculture and the environment. Systems analysis can play an important role in helping to address this challenge. For example, integrated assessment models have helped countries in Europe to effectively make improvements in air quality. Integrated assessment models are now being applied more widely, in China, India and other parts of Asia. They are also becoming more sophisticated in identifying measures that can tackle multiple pollutants, reduce greenhouse gas emissions and deliver multiple health and environmental benefits.

This session will showcase different ways these models are being applied to air quality challenges around the world and explore key areas for further scientific research and collaboration.

**Chaired by Professor David Fowler** (Environmental Physicist, Natural Environment Research Council (NERC), Centre for Ecology and Hydrology)

**GAINS Modelling of Air Quality and Climate Change by Dr. Markus Amann** (Program Director, Air Quality and Greenhouse Gases (AIR) Program, International Institute for Applied Systems Analysis (IIASA))

**Integrated Assessment for Air Quality in the UK by Dr. Stefan Reis** (Group Leader, Modelling and Integrated Assessment, Natural Environment Research Council (NERC), Centre for Ecology and Hydrology)

Panelists:

- **Professor Helen ApSimon** (Professor of Air Pollution Studies at Imperial College London)

- **Ms. Alison Gowers** (Public Health England)

- **Dr. Lena Höglund-Isaksson** (Senior Research Scholar, Air Quality and Greenhouse Gases (AIR) Program, International Institute for Applied Systems Analysis (IIASA))

- **Professor Frank Kelly** (Professor of Environmental Health and Director of the Environmental Research Group, Kings College London)

- **Dr. Iain Williams** (Deputy Chief Scientific Adviser at the Department of Environment, Food and Rural Affairs (DEFRA))

*Followed by Question and Answer Session*

**11:30 – 12:00   Coffee and Networking**

**12:00 – 12:50   Panel Session: "Sustainable Energy"**

How can decision-makers deliver energy security and reliability, energy access and sustainable energy? What are the health implications of energy choices? What are their effects on the environment? This session will explore how integrated assessment models have been, and could be, used to help balance each of these aspects of the energy system and to consider the broader impacts of energy policy.

**Chaired by Professor Jim Skea** (Research Councils UK Energy Strategy Fellow, Co-chair IPCC Working Group III & Professor of Sustainable Energy, Imperial College London)

**IIASA Speaker Presentation by Dr. Narasimha Rao** (Project Leader, Energy (ENE) Program, International Institute for Applied Systems Analysis (IIASA))

**UK Speaker Presentation by Professor Jim Watson** (Director, UK Energy Research Centre (UKERC) and Professor of Energy Policy at Science Policy Research Unit (SPRU), University of Sussex)

**Panelists:**

- **Dr. Paul Dodds** (Senior Lecturer in Energy Systems, Bartlett School Environment, Energy & Resources, University College London (UCL))

- **Dr. Jessica Jewell** (Research Scholar, Energy (ENE) Program, International Institute for Applied Systems Analysis (IIASA))

- **Professor Paul Wilkinson** (Professor at London School of Hygiene and Tropical Medicine)

*Followed by Question and Answer Session*


**12:50 – 13:50   Lunch and Networking**

**13:50 – 14:40   Panel Session: "Land Use"**

A key challenge for humanity is how a future global population can be fed healthily and sustainably. Achieving this goal involves finding a balance between the competing pressures for land from the agriculture, forestry, energy, conservation, and urban sectors. This session will discuss how systems analysis and models have contributed to policy in these areas, as well as exploring opportunities for further research.

**Chaired by Professor Sir Alan Wilson** (Chief Executive, The Alan Turing Institute)

**IIASA Speaker Presentation by Dr. Michael Obersteiner** (Program Director, Ecosystems Services and Management (ESM) Program, International Institute for Applied Systems Analysis (IIASA))

**UK Speaker Presentation by Professor Charles Godfray** (Hope Professor of Entomology and Fellow of Jesus College, Department of Zoology, University of Oxford)

**Panelists:**

- **Professor Georgina Mace** (Professor of Biodiversity and Ecosystems, and Head of the Centre for Biodiversity and Environment Research at University College London (UCL))

- **Professor Yadvinder Malhi** (Professor of Ecosystems Science and Program Leader in Ecosystems at the Environmental Change Institute, University of Oxford) (GERC member)

- **Dr. Ping Yowargana** (Research Assistant, Ecosystems Services and Management (ESM) Program, International Institute for Applied Systems Analysis (IIASA))

*Followed by Question and Answer Session*

**14:40 – 15:30   Panel Session: "Population"**

This session will look beyond traditional boundaries of demography and explore how changes in society, economy and the natural environment influence the health and mortality, migratory patterns, and reproductive behaviour of human society.

**Chaired by Professor Nigel Gilbert** (Director of the Centre for Research in Social Simulation, University of Surrey)

**IIASA Speaker Presentation by Professor Wolfgang Lutz** (Program Director, World Population (POP) Program, International Institute for Applied Systems Analysis (IIASA))

**UK Speaker Presentation by Professor Sarah Harper** (Director of the Oxford Institute of Population Ageing, University of Oxford)

 **Panelists:**

- **Professor Sir Andy Haines** (Professor of Public Health and Primary Care, London School of Hygiene and Tropical Medicine)

- **Dr. Anne Goujon** (Research Scholar, World Population (POP) Program, International Institute for Applied Systems Analysis (IIASA)

- **Dr. Sari Kovats** (Director, NIHR Health Protection Research Unit in Environmental Change and Health, London School of Hygiene and Tropical Medicine)

*Followed by Question and Answer Session*


**15:30 – 16:00   Coffee and Networking**

**16:00 – 17:00   IIASA-UK Collaboration/Opportunities for Integrated Assessment Model Research**

- Reflections from the day:
- Opportunities for research – where can systems analysis and modelling add value?
- Opportunities for collaboration
- Opportunities for policy – what policy challenges could systems analysis and modelling help tackle?

**Chaired by Professor Duncan Wingham** (Chief Executive of the Natural Environment Research Council (NERC))

Panelists:

- **Professor Jim Hall** (Director of the Environmental Change Institute and Professor of Climate and Environmental Risks, University of Oxford)

- **Professor Dr. Pavel Kabat** (Director General and Chief Executive Officer, International Institute for Applied Systems Analysis (IIASA))

- **Professor Brian Golding** (Research Fellow in Weather Impacts, Met Office)

- **Professor Eric Wolff** (Royal Society Research Professor, Climate Change and Earth-Ocean-Atmosphere Systems)

*Followed by Question and Answer Session*


**17:00 – 20:00   Drinks Reception**