

Bern Manifesto on

Climate change and cities:

processes and impressions



sc | nat

ProClim –
Forum for Climate and Global Change
Platform of the Swiss Academy of Sciences


British Embassy
Bern



**National Oceanography
Centre, Southampton**
UNIVERSITY OF SOUTHAMPTON AND
NATURAL ENVIRONMENT RESEARCH COUNCIL

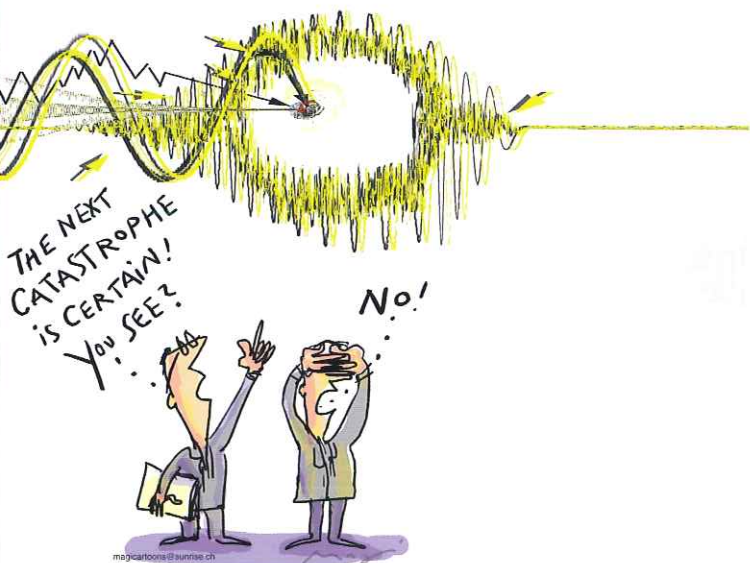
Bern Manifesto on

Climate change and cities

Introduction

Within the scientific community, it is widely agreed that climate change is occurring at an increased rate. The uncertainty lies in the magnitude of projected change and the exact human impacts. Global mean temperatures are expected to rise by 1 to 6 degrees by 2100¹ by raising mean sea level by up to 0.9 metres. Extreme weather such as heavy rainfall, floods, droughts and heatwaves are expected to become more intense and frequent in many regions.⁴ Concentrations of atmospheric carbon dioxide and other greenhouse gases have increased significantly beyond pre-industrial concentrations – even exceeding levels over the past 800,000 years. The climate system takes decades to respond to these enhanced concentrations and thus some impacts are now unavoidable.⁵

Carbon dioxide emissions from cities have a significant influence on climate change but cities are also sensitive to climate change impacts, especially in the developing world. Impacts such as heatwaves, droughts and floods may lead to more energy use from air conditioning, pumped drainage and desalinisation, leading to increased greenhouse gas emissions. Successful management of cities is therefore a principal part of our strategy in reducing the impacts of climate change.



Impacts on cities

As we gather in Bern in 2005, there are now six people on the planet for every one person alive a century ago when Albert Einstein made many famous discoveries in this city. By the year 2050, the global population is expected to total nine billion.⁶ More than half of the global population lives in cities and this proportion is increasing – especially in developing countries. Cities account for three-quarters of the total global energy consumption and produce 80 per cent of our carbon emissions. Approximately 1.5 billion people and 17 of the world's 20 largest cities are within 100 km of the coast. Sea-level rise will cause the physical displacement of people, businesses, and industry; and the loss of agricultural land, important coastal ecosystems, freshwater supply by saltwater contamination and the disruption of major international ports. Bangladesh, for example, stands to lose almost a fifth of its land area, resulting in the relocation of up to 20 million people within the next 100 years.

Climate change predictions show that European heatwaves – like that of 2003 – are likely to be commonplace by the end of this century⁷ and heavy winter rainfall in northern Europe is expected to become two to five times more frequent.⁸ Extreme weather cannot be treated in isolation from the global aspects of climate change and may combine to produce greater impacts. For example, storm surges in Bangladesh are likely to become more severe as a result of mean sea-level rise, vastly expanding the area at risk from flooding.



Recommendations

We must adapt to climate change and develop strategies to mitigate its effects. Recognising the complexity of comprehensive solutions,* this Manifesto focuses on strategies to reduce greenhouse gas emissions. Its recommendations are cost effective, politically realistic, feasible and technology neutral.†

International policies

At international level, we make three recommendations:

1 Expansion of the Emissions Trading Scheme

We propose an expansion of the current European Emissions Trading Scheme, with targets for all parties, in three areas:

- time, to provide an emissions trading framework beyond 2012
- industry, to include a greater range of industries (e.g. aviation)
- geography, to include a larger number of countries (e.g. China and India).†

2 Transfer of technology

We propose the further development of mechanisms to encourage the transfer, on a commercially feasible basis, of clean technology from developed to developing countries.

3 Agricultural subsidies

We propose that the level of agricultural subsidies be linked to the adoption of climate-friendly, land use policies.

National policies

At national level, we make two recommendations:

1 Accountability and personal carbon allowances

We recommend a programme – Carbon-cubed – to provide households with information on the carbon footprints[§] of items, transportation and services. It would include appliance metering and/or a number stamped on an item (similar to caloric reporting on food products) that allows customers to be aware of their daily carbon dioxide contribution.

We also recommend that a study be undertaken to determine the feasibility of personal carbon allowances (PCA). A PCA scheme would allocate, monitor and facilitate trade of individual carbon allowances.

2 Long-term carbon contracts

To facilitate private sector investment in research and development of clean technology, we propose contracts between governments and businesses for reducing emissions over a long time period and at a known price. These contracts could be based on those used in the electricity sector.

* These recommendations are premised on continuing investment in education and economic development in order to maximise our capacity to adapt to climate change.

† This Manifesto does not promote one particular emissions reduction technology over another.

‡ This Manifesto focuses on an Emissions Trading Scheme rather than an international greenhouse gas tax in order to reduce complexity since the identification of an international carbon price would be particularly complex.

§ The carbon footprint is the equivalent amount of carbon dioxide emissions generated by the production of the item.

Adaptation

In order to most effectively reduce the impacts of climate change, we need to rethink our relationship with the Earth. We must be proactive in our planetary stewardship and develop management strategies that are flexible in the long term. Necessarily, these interventions must take place at a range of scales: from international policy, through city-scale planning, to local engineering or technology schemes. Any intervention, at any scale, must necessarily be selected from a broad portfolio of options – with the selected solutions governed by regional factors that take a broad and long-term outlook.

For instance, a more comprehensive portfolio for addressing flood risk to cities might consist of strategies to manage greenhouse gas emissions, flood protection (e.g. dikes, barriers, mangrove forests, coastal wetlands), the urban environment (e.g. drainage of flood water), preparing for flood events (e.g. evacuation planning) and damages (e.g. flood resistant construction, sharing risk through insurance, provision of counselling services). Similar portfolios can be envisaged for reducing the other climate impacts. Importantly, many management interventions will reduce several climate impacts.

Conclusion

Ultimately, climate change is a societal and political challenge as well as a scientific issue. We must decide whether we want to continue on our current trajectory, or use more sustainable approaches to reduce our emissions and adapt to our changing climate.

Global issues demand global solutions. As young scientists and leaders, we call for immediate action.

For more information please contact the British Council in Bern.

British Council, Sennweg 2
Postfach 532, 3000 Bern 9
Switzerland
031 301 14 73

britishcouncil@britishcouncil.ch

Thanks to sponsors









We realised early on that we would not be able to deliver such an elaborate project without the support of partners and sponsors. When we approached ProClim, the Swiss forum for climate and global change issues, we found not only an open door, but also superb partners whose professional expertise was indispensable. We would also not have been able to succeed without the support of the British Embassy in Bern and the generous support of the Foreign and Commonwealth Office, both for the event and for the NSEW exhibition. The National Oceanography Centre at the University of Southampton played a unique role in helping to secure some of the UK's top young scientists; our British Council colleagues in the USA and Bangladesh did the same in their respective countries. Myclimate gave us much help in the planning phases and, with their help, we compensated our climate gas emissions so that the whole event was climate neutral.

I should like to publicly acknowledge the remarkable help we have received from our other sponsors and partners, for whose vision and far-sightedness we are sincerely grateful. These are SwissRe, Syngenta, Kühne und Nagel, NCCR Climate, Beer-Brawand Fonds, the Swiss National Science Foundation, the Swiss Academy of Humanities and Social Sciences, the Swiss Academy of Engineering Sciences and the Swiss Academy of Sciences. Special mention should go to Swisscom for their heroic efforts to ensure that our video-conferencing session with the University of East Anglia was a success and for sponsoring the link. Our thanks too go to the companies that provided us with free use of their rooms at the Stade de Suisse: BKW FMB Energie AG, Swisscom and Motorola. Heartfelt thanks also go to all our speakers, as well as to Professor Gian-Reto Plattner for bringing the whole event to a highly satisfactory conclusion under his expert Chairmanship.

Caroline Morrissey

Director, British Council Switzerland

Sponsors

 BKW [®] BKW FMB Energie AG	
	Max und Elsa Beer-Brawand-Fonds
	
 Foreign & Commonwealth Office	
 FONDS NATIONAL SUISSE SCHWEIZERISCHER NATIONALFONDS FONDO NAZIONALE SVIZZERO SWISS NATIONAL SCIENCE FOUNDATION	
 KUEHNE+NAGEL	 Swiss Re A Sharing Solutions initiative by Swiss Re – towards a sustainable future
 SATW Schweizerische Akademie der Technischen Wissenschaften Académie et des des sciences techniques Accademia Svizzera delle scienze tecniche Swiss Academy of Engineering Sciences	  sc nat Swiss Academy of Sciences Akademie der Naturwissenschaften Accademia di scienze naturali Académie des sciences naturelles

© British Council 2006 Design Department/T243 All images © Christopher Tribble 2005 (www.tribble.co.uk). Cartoons © Magi Wechsler.
 The United Kingdom's international organisation for educational opportunities and cultural relations. We are registered in England as a charity.

Printed by Beacon Press using **pureprint**, their environmental print technology. The electricity was generated from renewable sources and vegetable-based inks were used throughout. On average 88 per cent of the waste associated with this publication will be recycled. Beacon Press is CarbonNeutral® and is registered to environmental management system ISO 14001 and Eco Management and Audit System (EMAS). Printed on Revive Silk, a paper manufactured from 75 per cent post-consumer waste. In order to minimise the environmental impacts of this report, the British Council is working with the CarbonNeutral Company to offset the greenhouse gas emissions created by its production and distribution. This will be achieved by a tree-planting scheme at Hendre-ddu woodland in Snowdonia National Park.