

Statement of the Joint Science Academies For the G8 Summit Japan, 2008

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Joint Science Academies' Statement: Climate Change Adaptation and the Transition to a Low Carbon Society

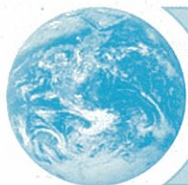
Joint Science Academies' Statement: Global Health

The Science Academies of the G8 countries, including the Science Council of Japan, and some relevant countries, announced their joint statements for the G8 Summit, Japan, 2008, as they have done annually since 2005.

By gathering scientific opinions and insight, scientists in each country share these statements to help solve the problems that humanity faces today and recommend them to the leaders of the G8 and other countries .



Science Council of Japan
~Since 1949~



Joint Science Academies' Statement: Climate Change Adaptation and the Transition to a Low Carbon Society

Since 2005, the Academies of Science for the G8+5 countries have called on world leaders to limit the threat of climate change. We have advised prompt action to deal with the causes of climate change and cautioned that some climate impacts are inevitable. However, progress in reducing global greenhouse gas emission has been slow.

In 2007 the Intergovernmental Panel on Climate Change (IPCC) reaffirmed that climate change is happening and that anthropogenic warming is influencing many physical and biological systems. Average global temperatures increased by 0.74°C between 1906-2005 and a further increase of 0.2°C to 0.4°C in the next 20 years is expected. Further consequences are therefore inevitable, for example, from losses of polar ice and sea-level rise.

Key vulnerabilities include water resources, food supply, health, coastal settlements and some ecosystems (particularly arctic, tundra, alpine, and coral reef). The most sensitive regions are likely to include the Arctic, Africa, small islands and the densely populated Asian mega-deltas.

As the concentration of greenhouse gases increases, these impacts become more severe and spread both geographically and sectorally. To stabilize the climate, emissions should eventually be limited to the net absorption capacity of the earth, which is less than half of current emissions. Immediate large-scale mitigation action is required. At the 2007 Heiligendamm Summit, G8 leaders agreed to seriously consider halving global emissions by 2050. We urge G8+5 leaders to make maximum efforts to carry this forward and commit to these emission reductions.

Mitigation policies are essential, but not sufficient. Adaptation is necessary if the worst impacts of climate change, now and in the future, are to be alleviated. Mitigation and adaptation can complement each other and if pursued together can significantly reduce the risks of climate change impacts.

Adaptation

Climate change is a pressing issue for today. Action on adaptation is needed now and failure to respond poses a significant risk. According to the IPCC:

- A global mean temperature change of only 2.0°C above 1990 levels will exacerbate existing impacts and trigger others, such as reduced water and food security.
- Increases of 2.0-4.0°C will result in widespread biodiversity loss, decreasing global agricultural productivity and long-term commitment to several metres of sea-level rise due to ice sheet loss.
- Increases above 4.0°C will lead to major increases in vulnerability, exceeding the capacity of many physical and human systems to adapt.

In April 2007, the UN Security Council addressed the threat that the aggregate impacts of climate change might cause, in particular the serious environmental, social and economic consequences and the implications for peace and security. All regions will be affected in the long term, but developing countries are likely to be affected most and their vulnerability will be exacerbated by pre-existing stresses.

Humans have been adapting to their environment throughout history. But the rate and scale of climate change means there is no time for complacency. A step-change in our response is needed, with action at global, national and local level. Local actors must be engaged in impact assessment and in identifying solutions. But global and national leadership is also required to manage the macro-scale effects that will accompany widespread efforts to adapt to climate change.

A strategic approach to adaptation must be based on the principle of sustainable development. As an immediate first step, governments can take measures to improve resilience to existing environmental stresses. Such measures will, in turn, reduce exposure to the threat posed by climate change. This involves governments recognizing the role that ecosystems and the natural resource base play in meeting basic needs (water, food and shelter). This strategic approach can be strengthened with more targeted measures once detailed assessments of the impacts and key vulnerabilities have been carried out.

Basic research, technology development and transfer will play a major role in improving the ability of nations to adapt. Understanding the underlying economic, social and environmental causes of vulnerability will enable the development of appropriate policy solutions, and strengthen the ability of the market to respond to the impacts. Governments and businesses can then develop adaptation solutions and avoid investment in technologies or infrastructure which fail to take climate change into account. This will also contribute to the achievement of other international priorities, including the Millennium Development Goals (MDGs).

Low Carbon Society

The development of a low carbon society means not merely the replacement of energy sources with less carbon intensive ones, but energy conservation as well. Sustainable consumption requires fundamental changes in all sectors and levels of society, including energy-saving housing, low-carbon transportation and more efficient industrial processes.

A movement to a low carbon society will provide the opportunity to mitigate and adapt. Mitigation cannot provide all the answers, but many impacts can be reduced, delayed or avoided by cutting emissions.



There is also an opportunity to promote research on approaches which may contribute towards maintaining a stable climate (including so-called geo-engineering technologies and reforestation), which would complement our greenhouse gas reduction strategies. The G8+5 academies intend to organise a conference to discuss these technologies.

The transition to a low carbon society requires: setting standards; designing economic instruments and promoting energy efficiency across all sectors; encouraging changes in individual behaviour; strengthening technology transfer to enable leapfrogging to cleaner and more efficient technologies; and investing strongly in carbon-removing technologies and low-carbon energy resources: nuclear power, solar energy, hydroelectricity and other renewable energy sources. These points are also stressed in the InterAcademy Council report¹.

Technologies should be developed and deployed for carbon capture, storage and sequestration (CCS), particularly for emissions from coal which will continue to be a primary energy source for the next 50 years for power and other industrial processes. G8+5 economies can take the lead globally to further develop CCS technologies. This will involve governments and industry working collaboratively to develop the financial and regulatory conditions needed to move CCS forward and international coordination in the development of demonstration plants.

Given the time-lags inherent in the global energy system, actions need to be taken now to reach the desired target by 2050. Whilst the developed world should take the lead and encourage technology transfer and collaboration with developing world partners, it is also an issue where the developing and emerging economies can and must make a significant contribution.

Transition to a low carbon society will also require reducing emissions caused by deforestation and degradation of ecosystems, requiring improved agricultural efficiency and sustainable forestry.

Conclusions

Responding to climate change requires both mitigation and adaptation to achieve a transition to a low carbon society and our global sustainability objectives. We urge all nations, but particularly those participating in the 2008 G8 Summit in Hokkaido, Japan, to take the following actions:

- Call on G8+5 governments to agree, by 2009, a timetable, funding, and a coordinated plan for the construction of a significant number of CCS demonstration plants.
- Prepare for the challenges and risks posed by climate change by improving predictive and adaptive capacities at global, national and local level and supporting the developing world in carrying out vulnerability analyses and addressing their findings.
- Take appropriate economic and policy measures to accelerate transition to a low carbon society and to encourage and effect changes in individual and national behaviour.
- Promote science and technology co-operation, innovation and leapfrogging, e.g., by transfer of some basic critical low-carbon and adaptation technologies.
- Urge governments to support research on greenhouse gas reduction technologies and climate change impacts.

As national science academies, we commit to working with our governments to help implement these actions.

¹ "Lighting the Way – Toward a sustainable energy future", InterAcademy Council, October 2007 www.interacademycouncil.net

Academia Brasileira de Ciências, Brazil

Royal Society of Canada, Canada

Chinese Academy of Sciences, China

Académie des Sciences, France

Deutsche Akademie der Naturforscher Leopoldina, Germany

Indian National Science Academy, India

Accademia Nazionale dei Lincei, Italy

Science Council of Japan, Japan

Academia Mexicana de Ciencias, Mexico

Russian Academy of Sciences, Russia

Academy of Science of South Africa, South Africa

Royal Society, United Kingdom

National Academy of Sciences, United States of America



Joint Science Academies' Statement: Global Health

In 2008, WHO will commemorate the 30th anniversary of the Alma-Ata Declaration which called for "Health for all." The United Nations Millennium Summit in 2000 launched the Millennium Development Goals (MDGs) including three related particularly to health: reducing the infant mortality rate, improving maternal health and halting the expansion of HIV and other infections. The other five MDGs call for action on factors that are also critical for human health.

Diseases - Future Challenges

The world's governments and science communities need to work together to better understand how, where and why infectious diseases emerge and spread. Often these are affected by environmental or social stress. Countries need to cooperate to monitor and contain infectious disease outbreaks.

There also must be greater international focus on, and collaboration to address, lifestyle-linked diseases. A rapidly growing number of people will suffer from heart disease, cancer, diabetes, obesity-related conditions, and neurological and mental disorders. Smoking is a challenge that has to be addressed in a timely manner.

In order to combat threats to human health globally, education, sharing of information and experience are key. Public health measures which could make a great deal of difference and deserve more attention include:

- Safe water, basic sanitation, and hygienic measures.
- Food safety.
- Equitable access to medical information and treatment.
- Training and retention of qualified medical and health professionals, and educators.

Nations should ensure that sustainable development plans include measures to share information on, and address and/or prevent, diseases.

Social Capital for Human Health

Because there are many determinants of health, the achievement of good health is not a matter for the health sector alone but also requires, for example, adequate levels of research, human security, education, economic development, nutrition and sanitation. Therefore, the responsibility for health is shared by all policy-makers in government and international agencies. Although governments remain ultimately responsible for assuring the conditions for health, they must work with civil societies, universities, business, and media among others.

The Way Forward

It is vitally important that we not only focus on the health of individuals, but also strengthen community health systems and the health workforce.

In order to address the challenges for global health, it is necessary to minimize the current obstacles to progress. Our agenda for change requires action across a broad front:

- Implementing previous funding commitments and encouraging the contribution of additional funding from all sources.
- Improving provision for public health programs and access to health care.
- Identifying and advancing research and innovation required to address unmet health and medical needs and support the generation of innovative health care products and services.
- Building a better evidence base on disease burden and on what interventions work – to assess the present situation and to target prevention and control measures.
- Meeting skill and infrastructure needs.
- Developing better coherence and connectivity among all those involved in addressing global health issues.
- Strengthening of preventive (prophylactic) medicine.



Conclusions

We, the academies of science of the G8+5 nations commit to assist in meeting these health challenges. We will continue to build links within the world scientific community with the objective to strengthen the role of science in international development. The science academies will do more in the identification of emerging issues and pursuing systematic dialogue with national opinion-leaders, policy-makers and with multilateral organizations.

We urge our governments to:

- Increase international collaboration, scientific and medical research, locally appropriate capacity building, and technology transfer and sharing to achieve results.
- Commit to continued global monitoring, communication and sharing of information on all health-related issues. We recommend further concerted effort to identify major challenges in chronic and infectious diseases, as a basis for global collaboration on research and on disease management.
- Increase their commitment to evidence based health and science policy making.
- Further strengthen coordination of health related programmes and leading international organizations such as WHO, FAO, and OIE.
- Promote public-private partnerships to encourage and appropriately protect innovation.

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