

CAETS

INTERNATIONAL COUNCIL OF ACADEMIES OF ENGINEERING
AND TECHNOLOGICAL SCIENCES, INC. (CAETS)
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CAETS is an independent nonpolitical, non-governmental international organization of engineering and technological sciences academies, one member academy per country, with the following objectives:

- Prepared to advise governments and international organizations on technical and policy issues related to its areas of expertise;
- Contribute to the strengthening of engineering and technological activities to promote sustainable economic growth and social welfare throughout the world;
- Foster a balanced understanding of the applications of engineering and technology by the public;
- Provide an international forum for discussion and communication of engineering and technological issues of common concern;
- Foster cooperative international engineering and technological efforts through meaningful contacts for development of programs of bilateral and multilateral interest;
- Encourage improvement of engineering education and practice internationally; and
- Foster establishment of additional engineering academies in countries where none exist.

- **Calgary, Alberta, Canada, July 13-17, 2009**
- **Copenhagen, Denmark, June 30, 2010**

Statements & Reports

<http://www.caets.org/cms/7122.aspx>

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Technological Sciences

**Global Natural Resources –
Management and Sustainability**
A CAETS Statement
Calgary, Alberta, Canada, July 13 - 17, 2009

The 2009 CAETS Convocation, hosted by the Canadian Academy of Engineering, addressed the grand challenges and opportunities associated with the sustainable management of natural resources. Resource activity worldwide is increasingly impacting society in both positive and detrimental ways. Demand for resources threatens to outstrip supply in many areas; extraction, refinement and utilization are contributors to greenhouse gas (GHG) emissions and climate change, and affect water supplies and the land base. Society faces an urgent need to reduce the demands on all kinds of raw materials and energy. New approaches are required to managing global resources and the supply chains they feed, to ensure that humanity's needs are fulfilled for current and future generations. A balance must be struck between economic gain derived from resource exploitation and utilization, and the impacts on society and the environment. Issues related to energy, water management, forestry, and mining/minerals must be considered in an integrated approach and in harmony with nature, which examine their interdependencies and tap the cross-sector opportunities for novel strategies, processes, technologies and solutions.

Overarching Recommendations

1. Industry and government must consider sustainable development, stewardship, conservation, recycling, re-use, substitution and responsibility to local inhabitants when assessing the present and future management of our natural resources base.
2. Engineering design as well as industry and government evaluation of a product's sustainability must account for its entire life cycle, including processes for manufacture, services for use and disposal.
3. Adaptations to climate change must be robust against uncertainty, informed by data and research, integrated across sectors and consistent with climate change mitigation policies.

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Sustainable Food Systems – Toward Food for All

A CAETS Symposium Statement
Copenhagen, Denmark, June 29-30, 2010

The 31st Annual Meeting of the International Council of Academies of Engineering and Technological Sciences (CAETS) took place in Copenhagen, Denmark, June 29-30, 2010. A symposium held June 29 focused on how to achieve a sustainable global food system, which allows increased food production while reducing poverty and hunger and over-exploitation of natural resources. It was noted that past advances in food production, obtained in part by over-exploitation of natural resources, as more land was brought into agriculture and new fish stocks were exploited, must be avoided. Achieving sustainable management of natural resources while meeting increasing future food demands was recognized as the key to success.

The conference rejected the notion that efforts to assure food security for all must necessarily be at the expense of the environment. While the continuing need to develop new technologies, particularly in recognition of the vulnerability of food security to global climate change, should not be underestimated, some of the solutions to achieve a sustainable food system are available through regional adaptation and utilization of technologies already developed. Progress toward food security today can be facilitated today by adoption of economically and politically feasible government interventions, for example, to provide access to available technologies to indigent farmers.

Achievement of a sustainable food system will require **reform of the food production system, modernizing the food processing chain, and implementation of policy and market reforms and appropriate economic incentives.** To achieve these goals, the CAETS Council recommends seven actions as enumerated below. These recommendations are based on the views of the speakers and participants, including attendees from member academies, at June 29 Symposium.

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DEPLOYMENT OF LOW-EMISSIONS TECHNOLOGIES FOR ELECTRIC POWER GENERATION IN RESPONSE TO CLIMATE CHANGE

Working Group Report
Executive Summary and Recommendations
1 September 2010

PROJECT BACKGROUND

The International Council of Academies of Engineering and Technological Sciences (CAETS) at its Council Meeting in Calgary, Canada, in July 2009 endorsed a project entitled *Evaluation of Strategies to Deploy Low Emissions Technologies for Electric Power Generation in Response to Climate Change*.

A CAETS Working Group was established comprising representatives of CAETS member academies¹. At a meeting in Tokyo from 2 to 3 March 2010, members of the Working Group:

- Presented reports of the status of energy and electricity generation and related developments in their countries;
- Formed the view that there is limited extant evidence to enable a systematic evaluation of technologies for electric power generation in response to climate change, other than levelised cost of electricity and real option values; and
- Identified key issues for the deployment of low emissions technologies.

Following that meeting, members of the Working Group prepared a report entitled: *Deployment of Low Emissions Technologies for Electric Power Generation in Response to Climate Change*. The report represents a joint effort to document the key technological issues being faced in the deployment of low-emission technologies for supplying electrical energy to meet the world's needs. The following Executive Summary, Collaboration and Issues and Recommendations are taken from the CAETS Working Group report.

¹The representatives on the CAETS Working Group are listed below:

- Australia - Australian Academy of Technological Sciences and Engineering
Dr Vaughan Beck (Chair) and Dr John Burgess
- Canada - Canadian Academy of Engineering
Professor Robert Evans
- Germany - acadtech
Professor Dr Frank Biedermann
- India - Indian National Academy of Engineering
Professor Hanasoge S. Mulanada
- Japan - Engineering Academy of Japan
Dr Koito Hataka
- Korea - National Academy of Engineering of Korea
Professor Myungsook Oh
- South Africa - South African Academy of Engineering
Mr Willem du Preez
- UK - The Royal Academy of Engineering
Professor John Loughhead

² See: www.caets.org

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Euro-CASE

<http://www.euro-case.org/>

Organisation

The European Council of Applied Sciences and Engineering is an independent non-profit organisation of national academies of Engineering, Applied Sciences and Technology from 21 European countries.

Euro-CASE acts as a permanent forum for exchange and consultation between European Institutions, Industry and Research.

Through its Member academies, Euro-CASE has access to top expertise (around 6,000 experts) and provides impartial, independent and balanced advice on technological issues with a clear European dimension to European Institutions, national Governments, companies and organisations.

Mission statement

The mission of Euro-CASE is to pursue, encourage and maintain excellence in the fields of engineering, applied sciences and technology, and promote their science, art and practice for the benefit of the citizens of Europe.

In pursuit of this mission the objectives of Euro-CASE are:

- Maintain a leadership role in promoting attention to excellence in applied sciences and engineering and to related issues of key importance to Europe
- Ensure that the societal impact of technological change is given proper attention with full consideration of environmental and sustainability aspects
- Provide impartial, independent and balanced advice on engineering and applied science issues that affect Europe and its people to the European
- Commission and Parliament, and other European institutions

- To promote the importance of applied sciences and engineering throughout Europe and to develop greater public understanding and interest
- Attract young Europeans into careers in applied sciences and engineering in order to ensure future technological progress in Europe
- Draw on the experience and best practices of the national academies of engineering and applied sciences in Europe, developing appropriate information networks

Interesting to visit (Activities):

Engineering Education

This platform is treating of:

“Ranking of Technical Universities and Measuring Excellence” and more precisely “How engineering is recognised in this ranking system”. It should be interesting to compare pure science and engineering.

“The Implementation of the Bologna Process in engineering Education” a Euro-CASE statement will be written by Reiner Kopp, Acatech (DE) and Petr Zuna, EA CR (CZ) and will be available soon.

Experts from Austria, Croatia, Czech Republic, Germany, Hungary, Netherlands, Norway, Spain, Slovenia, Sweden and United Kingdom are already involved.

This Platform is chaired by Reiner Kopp, Acatech (DE)

[Download: “Bologna process 2010” Final Report](#)

By the Core Group Engineering Education

[Download: “Ranking in Engineering Sciences” Final Report](#)

By the Core Group Engineering Education