



### The Gathering Storm

In the last couple of years there have been, by my count, no fewer than nine studies in Canada and the United States on science, mathematics, and engineering competitiveness. As is the nature of these reports, they all call attention to the potential for loss of science and engineering innovation, and as a result economic growth and competitiveness. Most of these reports raise three concerns: the increasing importance of non-Western economies, the dwindling number of Western students who wish to go into science and engineering, and the general retreat from teaching the basic sciences in K–12.

On 12 October 2005, the National Academy of Sciences of the United States of America released one of the most comprehensive looks at these concerns in a massive document called *Rising above the Gathering Storm*. The link to the executive summary is [http://www.nap.edu/execsumm\\_pdf/11463.pdf](http://www.nap.edu/execsumm_pdf/11463.pdf), and the complete report can be found at <http://www.nap.edu/books/0309100399/html/1.html>. The blue ribbon committee that produced *The Gathering Storm* and the focus groups that assembled the in-depth information provide 10 recommendations.

Although *The Gathering Storm* is a United States document, probably many of the issues and suggestions are applicable in most countries. However, as ecologists, this document offers us another opportunity to remind the public and policy makers that the innovation that will drive the world's economies in the 21st century will require considerably better understanding of the environment and ecology than has been true in the past. Some of the innovations in past centuries have created the environmental problems of today.

*Rising above the Gathering Storm* identifies two important challenges: creating high-quality jobs for Americans, and responding to the nation's need for clean, affordable, and reliable energy. Certainly both of these challenges are not restricted to the United States; creating high-quality employment and finding environmentally and ecologically sound methods for producing energy to run our economies must be the goal of all countries. Again, ecologists might add to these two key characteristics, the fact that science and engineering must incorporate ecosystem services into their innovative developments. Together with the development of new energy sources, the addition of ecosystem services will be one of the biggest innovations since agriculture.

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