

**Testimony: Rising Above the Gathering Storm, Revisited–Rapidly Approaching Category 5  
House Committee on Science and Technology  
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Chairman Gordon and members of the House Committee on Science and Technology. I appreciate the opportunity to comment on “Rising Above the Gathering Storm, Revisited” and its implications. I will be mindful of your time in making a few take-away points.

First, there is no question that the country has made progress in supporting Science and Technology (S&T) since the “Rising Above . . .” report in 2005 through the America Competes Act, ARRA, STEM education initiatives and the like. National awareness of our competitiveness in innovation has increased, Rising Above the Gathering Storm has become a household phrase, and remarkably, it has “legs” today, five years hence. But, regrettably, as this “Rising Above . . . Revisited” report vividly verifies, the United States is relatively less competitive globally today than it was in 2005 for two principal reasons: (1) we did not implement sufficiently and in an on-going manner the recommendations in the earlier report, and (2) other countries have continued their advances in S&T competitiveness with determination and purpose. Also our national priorities today are many (e.g., wars, debt, economy, jobs, housing, healthcare, terrorism) and global competitiveness in S&T and innovation is not near the top among them. This is our principal and fundamental problem.

If we believed that delivering high quality, high paying jobs for Americans depends on our competitiveness in innovation, science and technology, S&T competitiveness would have very high priority today.

I recently chaired the ad-hoc National Research Council “Committee on Global Science and Technology Strategies and Their Effect on U.S. National Security.” This committee issued a 2010 report titled the “S&T Strategies of Six Countries: Implications for the U.S.” [<http://www.nap.edu/catalog/12920.html>]. The six countries are Japan, Brazil, Russia, India, China, and Singapore - JBRICS. This study concluded that national culture was the “*best predictor*” of future S&T competitiveness. Most countries, including the U.S., use economic and capacity measures to rate S&T innovation capability, for example, %GDP invested in research or number of engineers graduating from universities. However, those countries that shape their cultures to facilitate the achievement of their priority S&T goals have predictably succeeded in reaching those goals, and will likely do so in the future. Of the six countries studied, Singapore and China stood out in this regard. While these two countries have remarkably different goals, different drivers of S&T and innovation, different population scales, and different markets, they used similar strategies in shaping their cultures to focus on S&T priorities. And they experienced similar achievements against their goals. However, the other four JBRIC countries (Japan, Brazil, Russia and India) have been held back strikingly in their S&T achievements because cultural issues have limited the priority they afforded their S&T goals. The committee concluded that their future achievements will likely be similarly limited unless changes in cultural priorities are forthcoming. Culture has been largely overlooked when predicting national innovation capacity.

When the national security of the U.S. was acutely threatened by the attacks of September 11, the nation abruptly changed its culture to support the national security priority. However, such occasions are rare and widely recognized as national emergencies requiring unusual actions. If we do not recognize the significance of the declining course of U.S. competitiveness in S&T and innovation to our future prosperity and national security, we will not change the culture necessary to make S&T a higher priority. I believe this is where we are today.

I strongly encourage leaders in U.S. policy-making positions to visit China and Singapore to gain a firsthand understanding of why they are succeeding and what changes in culture they have instituted to achieve their goals. I am confident that this would literally be a “stunning experience “ for all those participating. Only then will we fully understand the seriousness of our national competitiveness problem and the priority attention required today to fix it.

## **University Administration Profiles:**

### **C. D. (Dan) Mote, Jr., Glenn L Martin Institute Professor of Engineering**

C. D. (Dan) Mote, Jr. began his tenure as president of the University of Maryland and Glenn L. Martin Institute Professor of Engineering in September 1998. As President from 1998-2010, he encouraged an environment of excellence across the University, and provided leadership in implementing its 10-year strategic plan to elevate Maryland into the top tier of research universities worldwide.

Academic programs flourished under Dr. Mote with the University ranking 18th among U.S. public universities according to *U.S. News & World Report* and 37th in the world according to the Academic Ranking of World Universities by Shanghai's Jiao Tong University.

Dr. Mote sought to draw more of the State's highest-achieving students by expanding honors programming, living and learning communities and establishing the President's Promise, which offers every undergraduate the opportunity for a unique experience outside the classroom. He also launched the Maryland Incentive Awards Program in 2001 to recruit and provide full support to Baltimore and Prince George's County high school students of outstanding potential who have overcome extraordinary adversity.

Dr. Mote also spurred the University to become one of the State's most valuable economic engines, with a \$3.4 billion annual impact. The University's research, outreach and education assist the State by bringing major federal and private partners to the area's largest research park, M Square, growing small businesses, and graduating the State's largest number of scientific, business, life science, engineering and technology students. He worked to strengthen the University's position as a global institution, overseeing substantial growth in international partnerships, creating an international incubator, study abroad programs, recruitment of international undergraduates, and programs for training international government and business leaders. Under Dr. Mote's leadership, the University addressed today's most pressing scientific and societal challenges, such as climate change, the economy, energy, homeland security and public health. Its research enterprise raised \$550 million in external grants and contracts in fiscal year 2010.

Dr. Mote serves on National Academy of Sciences (NAS) committees that address challenges to U.S. leadership in science and technology, including the committee that authored the *Rising Above the Gathering Storm* report. He co-chairs The Academies Government-University-Industry-Research Roundtable and is a member of its Committee on Science, Engineering and Public Policy. He is a member and Treasurer of the National Academy of Engineering, where he serves on its Council and is a Steering Committee member of the Energy Security, Innovation and Sustainability Initiative of the Council on Competitiveness.

Dr. Mote previously served for 31 years on the faculty of the University of California, Berkeley, where he earned his three engineering degrees, served as vice chancellor, held an endowed chair in mechanical systems and was president of the UC Berkeley Foundation. He conceived and led a comprehensive capital campaign for Berkeley that raised \$1.4 billion. He earlier served as chair of Berkeley's Department of Mechanical Engineering.