MANUFACTURING & TECHNOLOGY NEWS

COVERING INNOVATION, GLOBALIZATION AND INDUSTRIAL COMPETITIVENESS

PUBLISHERS & PRODUCERS, P.O. BOX 36, ANNANDALE, VA 22003
PHONE: 703-750-2664 FAX: 703-750-0064 URL: WWW.MANUFACTURINGNEWS.COM

Monday, May 15, 2006 Volume 13, No. 10

Are 800 Million Chinese Peasants On The Threshold Of Opportunity Or Oblivion?

Social unrest in China is growing at a fast rate, but what it means for the political stability of the country is up for debate.

Last year, the Chinese reported 87,000 "mass incidents," of unrest, or about 240 per day. This is up from 58,000 incidents in 2003; 40,000 in 2000; 24,500 in 1998; and 8,700 1993. "This is not something [China's government is] dealing with occasionally, but on a constant daily basis," says Joshua Muldavin, professor of Asian studies at Sarah Lawrence College. But little is known about most of these events other than that they disrupt public order.

BY RICHARD McCORMACK

For Muldavin, who has lived in the Chinese countryside for years, these incidents cannot be ignored and portend a crisis extending far beyond China's borders, potentially impacting large portions of the globe, including the United States.

But Albert Keidel, senior associate at the Carnegie Endowment for International Peace, does not agree. Instead, he sees the growing number of public incidents being the result of a society that is adjusting to the deregulation of its economy, the rise of markets in setting prices, the elimination of subsidies and a concurrent improvement in productivity.

"This in my mind as an economist is a healthy development because it is creating incentives and moving people in the direction of being productive and rewarding those attributes that are also productive," he told the United States-China Economic and Security Review Commission recently. "Those that have an education are now finding that their education correlates with income. Those who are working hard find that that hard work rewards them including entrepreneurial activity." Millions of Chinese are now able to move to new jobs voluntarily, which is good in a dynamic, changing culture that is lifting people out of poverty.

"How can so many demonstrations occur in a society that seems to be in the public image an authoritarian regime that doesn't broach any criticism?" Keidel asks. "That portrayal of China today is outdated. There is a great deal more flexibility and freedom in the life of an individual in China, as long as one doesn't contribute to what is seen as the demise of the Party's control in the country....The overall trend is a healthy one and I don't think it portends a breakup of this political system."

Not so, counters Muldavin, who calls the situation in China a "crisis" for the vast majority of Chinese unsure about their future. The

(Continued on page four)

Japan Breaks Out Of Its Slump And Invests To Regain Its Lead

BY KEN JACOBSON

Japan has broken out of its "prolonged economic downturn" and is implementing a strategy that calls for innovation by its manufacturers to boost it back to the top rung of trading nations, the country's minister of state for Science and Technology told a Washington, D.C., audience last week.

"Japan has at long last entered the process of sustainable expansion, and Japan's manufacturing industry is making good use of the latest science and technology results to develop its own distinctive programs," Iwao Matsuda told an audience gathered at the headquarters of the American Association for the Advancement of Science on May 3.

"If we can accelerate this trend, then I believe the day when Japan

(Continued on page six)

Advanced Technology Program Board Perplexed By NIST's Decision To Shut Down

BY KEN JACOBSON

The Commerce Department's long-embattled Advanced Technology Program (ATP) last year began implementing a "phasedown plan" under which around one-quarter of its employees have voluntarily left the program or given notice of their intent to do so, ATP officials disclosed this week.

The phasedown, whose existence was made public at a May 9 meeting of ATP's Advisory Committee, had been announced to the program's staff on December 2, two months before the president requested that Congress cut off the program's funding, effective in fiscal year 2007. Some ATP Advisory Committee members were surprised by the news and expressed frustration that Bush would be cutting an important program at a time of declining U.S. industrial competitiveness.

The 2007 budget is the third straight in which the Bush administration has placed a zero by ATP, which is a cost-shared program with industry participants. In two other years it had requested no more than closeout funding, $13 million for 2002 and $27 million for 2004. Congress has kept the program alive but has appropriated no money for new competitions since 2004, and this year ATP's budget fell to $80 million from $140 million in 2005.

"The [phasedown] plan is well under way and proceeding as expected," ATP Director Marc Stanley told members of the Advisory Committee at the Gaithersburg, Md., headquarters of the National Institute of Science and Technology (NIST), which manages the program. An agency spokesman described the attrition rate as "on track" at the present time.

Of the 21 ATP staff members who have so far left or given notice, Stanley said, 14 have found new positions within NIST, four have moved to other federal agencies, one has taken a job in the private sector and two are in line to accept an employee buyout.

The buyout, under the government's Voluntary Separation Incentive Program (VISP), was offered to ATP employees for the first time this year. ATP staff has also been given a greatly extended period to consider a separate offer under the federal Voluntary Early Retirement Program; the latter, described by an official as "NIST-wide," reprises similar offers made in the past couple of years.

The voluntary early retirement extension is one of several "key elements" of the phaseout plan, the NIST spokesman said. The others are encouraging other NIST units to employ departing ATP staffers, keeping communications to ATP staff as open as possible, and producing a report documenting ATP's history.

Expected to be finished by fall, the report will cover ATP "from birth to phaseout," Stanley said, and will include "the historical evolution of ATP, the story of the focused programs, the role of industry, our model evaluation structure, and ATP project-management methods." Its aim, he explained, is "to document our legacy in such a way that it becomes accessible to many program managers."

Ostensibly less contentment was to be observed on the part of Advisory Committee members, who were sometimes vehement in voicing their opposition to ATP's impending shutdown before Stanley and NIST Director William Jeffrey, who also attended the meeting.

"I have to go on the record as saying that this is a terrible mistake," said Alan Russell, director of the University of Pittsburgh's McGowan Institute for Regenerative Medicine. "I think this closedown of ATP is much more about politics than about what NIST stands for, which is measurement, quantifiable standardization."

Noting that Congress has rebuffed administration attempts to kill ATP year after year, Russell told *MTN* following the meeting that he considered "entirely inappropriate" what he termed a move to "preempt" a congressional decision on 2007 funding for the program by starting to dismantle it. "This year, for whatever set of reasons that I do not understand, NIST has taken the position that it will bow to the politics," rather than defending and nurturing ATP as, he said, NIST directors had done in the face of previous assaults.

Committee Chair Ross Armbrecht, executive director of the Delaware Foundation for Science and Mathematics Education, stated that ATP is "considered a world-class program" by U.S. trading partners, some of whom are attempting to copy it. Eliminating ATP, he declared, would be "a national tragedy for our competitiveness."

Defending the quest to shutter ATP, Jeffrey pointed to what he characterized as higher priorities for the Bush administration: halving the federal budget deficit, fighting terrorism, and boosting funding for NIST's core laboratories under the American Competitiveness Initiative.

But committee member Maria Thompson, CEO of the Michigan-based fuel-cell and battery firm T/J Technologies, countered that the loss of ATP would "hurt American competitiveness [and] hurt homeland security." She protested the scrapping, in the face of rising gasoline prices, of a program that she believes to have played an important role in fostering development of alternative energy technologies.

Another committee member, Michael Borrus of the venture-capital firm Mohr, Davidow Ventures, told *MTN* after the meeting: "It's precisely the wrong time to kill this program. In fact, we probably should be substantially increasing its size and letting it focus on new issues like energy independence that we desperately need a focus on.

"Here's the big irony," he added: "Essentially every country in the world we're concerned about, including China and India, are coming to ATP to learn how to run the program because they know they need it — at the same time that the Bush administration is proposing to shut it down.

"What's wrong with this picture?"

Air Force Lt. Col. Questions Future Of Aerospace Industry

The U.S. aerospace industrial base is "on the brink" of extinction, argues Air Force Lt. Col. David King. "Short-term budget decisions imperil the long-term viability" of the industry, he states in the Spring 2006 edition of "Air & Space Power Journal." The gradual decline of the industry is masked by the success of the "shock and awe" air-power displays of recent wars. But this capability is the result of an industrial base "that no longer exists due to consolidation of the defense industry and a reduction in its workforce," King argues. One piece of evidence that documents the deteriorating industry was the recent federal government decision to award the design of the next U.S. presidential helicopter to Agusta Westland, a British-Italian joint venture.

"When a condition such as industrial capability deteriorates slowly, perceptions gradually shift so that several years or decades may pass before people perceive significant changes in the baseline," King writes. "Because the American aircraft industry has declined by many measures, available capability may not meet projected needs."

The country's military aircraft industry has gone through a radical consolidation. The remaining companies are partnering with each other on the few active projects and are requiring the use of common suppliers, further eroding the innovative capacity of the industry.

"Policymakers may expect continued innovation without realizing that recent success stems from a more robust industrial base than currently exists," King explains. Experienced production, design and engineering workers are not training the next generation of workers, due to cutbacks in orders. "Sustaining a viable industrial base requires enough work to maintain and renew" the aerospace workforce, King writes. The average age of a machinist working on the F-22 is 54. "A recent decline in the number of firms and experienced workers suggests that the health of the American aircraft industry is deteriorating."

The gap in time from when the F-22 Raptor stops production and the F-35 Joint Strike Fighter ramps up to full production in 2013 "jeopardizes the crucial 'art' of designing and manufacturing stealthy materials and parts...," King writes. "Termination of F-22 production before F-35 production matures will translate into higher costs for the latter program — at the same time the Air Force begins to rely more heavily on the F-35."

Maintaining the industrial base will require annual production of 120 aircraft per year, but neither the production capability nor the budget exist to do so. "Continuing the production of F-22s until F-35s are fielded and their production processes mature would solve this problem, and help maintain needed industrial capability," King writes. Producing 381 F-22 aircraft would replace more than 500 legacy aircraft, but plans call for the procurement of only 180.

"Some individuals argue that information-age warfare...will reduce the importance of industrial capability," King writes in the conclusion of his eight-page article. "After all, the feudal system ended when changing technology and the rise of nationalism replaced knights with mass armies. Although American society is moving its focus from manufacturing to information, this shift belies the fact that people didn't stop eating when the economy switched from agriculture to manufacturing. In fact, the ability to concentrate on manufacturing required modern, more efficient agriculture. Today, increased productivity allows a single farmer to feed over 100 people. Similarly, leveraging information-age capabilities calls for a modern and efficient industrial base. We must ask ourselves whether we are making investments — analogous to those we made in agriculture — to ensure that needed aircraft design and manufacturing capability exists. When it comes to the American aircraft industry, we have reason to doubt whether current investment levels will maintain that capability."

House Approves Defense Materials Protection Board

The House Armed Services Committee continues to be concerned about the health of the U.S. defense industrial base. But instead of taking the more controversial tack of mandating the purchase of weapons, parts and components from U.S. suppliers, it has instead directed the Secretary of Defense to create a new "Strategic Materials Protection Board."

This board, comprised of six top Pentagon officials, would "determine the need to provide a long-term domestic supply of items designated as critical to national security to ensure that national needs are met," says the 2007 Defense Authorization bill (HR-5122), approved by the House on May 11 by a vote of 396-31. The board would analyze risks of having to depend on overseas sources of supply for items that are "critical" to national security. The board would then "recommend a strategy to the President to ensure the domestic availability of those items and the industrial base that supports them," says the legislation. It would publish a list of those items at least every two years in the Federal Register "including a list of specialty metals determined to be critical to national security purposes," according to the bill.

Each time the board meets, it would be required to provide Congress with a report of its findings. "The Board may not remove from the list...an item previously determined to be critical to national security by the Board until a period of 30 days expires after the Board submits to the congressional defense committees a written notification of the removal," says the bill.

The board would be chaired by the Secretary of Defense and include the Under Secretary of Defense for Acquisition, Technology and Logistics; the Under Secretary of Defense for Intelligence; and the Secretaries of the Army, Navy and Air Force.

Tough Choices In China...(From page one)

rapid growth of China's economy "has been built upon a base of environmental destruction and decay," he says. "In this process, the state has lost much of its legitimacy with the country's majority and now it's challenged by direct and also indirect forms of resistance. As China's global integration proceeds, this paradox of growth built on decay and the resulting rural crisis has created a shaky foundation for arguably the world's most important new superpower."

By trying to grow itself out of its problems, China has only exacerbated the tensions that exist in rural areas where the majority of its population still resides. While economic growth has helped 150 million people move into the middle class, there are still 800 million peasants living in the countryside, 400 million of whom have seen their incomes stagnate or decline.

"This has important implications not only for China but also for the world," Muldavin told the U.S.-China Commission. "There are two Chinas now: one that the world pays homage to and the other that the world has pretty much forgotten about. One is for investors and those interested in trying to go in and make money. They set up factories and use China as an industrial platform for the world. And the other, in this rural hinterland, is a very different story. In these areas, the reforms brought initial increases in income but were accompanied by serious problems of subsequent stagnation, declining production and the rising peasant risk that resulted as they depended increasingly on household labor and declining sized plots of land for their livelihood."

In the southern part of the country, land is being seized for factories, roads, waste dumps, housing projects, power plants and dams, leaving peasants with what Muldavin calls "two-mouth lands" that are unable to feed a family of five. The loss of farmland is "forcing many members of the household to join the 200 million workers who on any given day are wandering the roads of China looking for someplace to work."

Some families have lost even that small parcel of land. There are now at least 70 million landless peasants with little means to support themselves and no collective welfare programs left. "The enormous number of landless or land-poor peasants means that the Chinese state is struggling not only to maintain legitimacy, but that this fundamental aspect harks back to a previous [1949 Moaist Revolutionary] period in China's history and therefore raises some really significant challenges," says Muldavin. "The peasants and rural workers have seen the state increasingly side with the newly rich over the past two decades and that leads to incredible amounts of disenchantment with state policies."

The benzene chemical spill into the Songhua River in November impacted millions of rural residents who weren't told of the situation. This type of environmental disaster is happening frequently in China. "The world as a whole, in varying degrees, I would argue, is implicated in this predicament and actually can't afford to pretend otherwise," Muldavin contends. "China's rural hinterlands are in essence the engine as well as the dumping ground of China's unprecedented economic growth. These rural areas provide the country's booming cities with cheap unorganized labor principally drawn from extremely poor peasant communities in the midst of their own social and environmental crises. It's also here that the most toxic industries are located out of sight of the world's media. Rural peasants labor in some of the world's dirtiest, most dangerous conditions in these far-flung townships and village enterprises spread across the whole country. These are industrial subcontractors to not only Chinese companies but also international companies that spew pollution into the air and water and onto the land. And when the health of rural workers is destroyed, they return to tilling decimated lands around their villages, which have become toxic waste dumps for this unregulated production."

The vast majority of Chinese peasants understand their place in the pecking order, and they know who to blame and for whom they toil. Factories run by multinational companies might have higher workplace and environmental standards, but that does not apply for their subcontractors, says Muldavin. "In places that I've worked [in rural China], there's a clear identification" of the ultimate customer for the products that are being made. "For instance, they're sowing on the ear of a doll [for] toy manufacturers Hasbro and Mattel. They know it's a Hasbro doll, and Hasbro has layers between them and that factory. Perhaps in the premier industrial sites they're operating in a positive way, but their subcontractors are not operating in those same kinds of positive ways. There is the potential for the link."

> *"Rural China, its environment and its people, are on the bottom of a global commodity chain."*

These issues may seem distant, Muldavin continues, "but their concrete manifestations appear on the shelves of the local War-Mart and IKEA. Rural China, its environment and its people, are on the bottom of a global commodity chain, tied to China's emergence as global companies' industrial platform of choice.

"While China's workers and environment pay most of the cost, we outside the country's borders are ever eager to purchase low-price goods, irrespective of the environmental and social impacts, particularly ones as distant and hidden as those in rural China. We consume the benefits and yet, indirectly we also bear the costs. As the word's companies continue to rush in to set up factories to avoid

(Continued on next page)

NASA's R&D Programs Are In Perpetual Decline

NASA's Aeronautics Research Mission Directorate (ARMD), long an important contributor to the strength of U.S. aircraft manufacturing, is in imminent danger of finding itself "on a glide path to irrelevance," according to a report released this week by the National Research Council (NRC) of the National Academies.

Amid "lack of national consensus about the federal government's role in civilian aviation generally and NASA's role in aviation technology development in particular," ARMD has been unable to deal constructively with the budget cuts that have plagued it since the late 1990s, indicates the report, "Aeronautics Innovation: NASA's Challenges and Opportunities."

"On the one hand, the community of industry, academic and other stakeholders and experts support an expansive public research and development program with NASA playing a lead role," says a committee of the National Academies' Board on Science, Technology, and Economic Policy (STEP), which drafted the report. "On the other hand, successive administrations and sessions of Congress have over the past seven or eight years reduced NASA's aeronautics budget without articulating how the program should be scaled back.

"In these circumstances," recounts NRC, "NASA has tried to maintain an expansive program by spreading diminishing resources across existing research establishments and many objectives and projects — too many to ensure their effectiveness and the application of their results."

Even if a national aeronautics plan ordered up by Congress late last year (*MTN*, Jan. 4, p. 1) brings some clarity on the policy front, budget pressure seems unlikely to ebb. The administration has proposed to cut ARMD's funding by 20.6 percent in 2007 — to $724.4 million, from $912.3 million this year — and to leave it hovering at around that level through 2011, by which year overall NASA funding is projected to rise to $18.5 billion.

ARMD's dilemma is a high-stakes affair. Aircraft and aircraft parts last year accounted for net exports totaling $31.5 billion, one of very few bright spots in a U.S. trade balance for manufactured goods that, overall, ended up $506 billion in the red. In addition, ARMD is tasked with R&D for the U.S. air-transportation system, upon whose safety and efficiency the country's economy has come to depend.

Still, as the report observes, "NASA aeronautics is overshadowed in resources, managerial attention and political support by the agency's principal mission of space exploration and discovery" — a "difference in status" that has become, "if anything, more pronounced since President Bush's announcement of a new mission" of human space flight to the moon and Mars.

Scarcity of both funding and thematic guidance has led ARMD to revise its program twice in two years, which has resulted in a pendular swing from proposing concentration on a limited number of technology demonstrations for the 2006 budget year to advocating a return to basic research for 2007.

Although the report acknowledges that "refocusing the NASA aeronautics program on fundamental research may appear to be a reasonable strategy given the current outlook for funding," it argues that such a course "risks losing the support of industry stakeholders, without which the program cannot compete effectively for resources in a constrained budget environment."

Moreover, "the public-good areas of NASA R&D work in which the argument for government

(Continued on page 13)

China...

(Continued from previous page)

environmental and occupational regulations elsewhere, as well as unionized labor, they are backed by the state in this. They are dragging communities worldwide in a downward race to the bottom as they struggle to compete with China's socially and ecologically destructive industrial platform."

This is not a "race to the bottom," Keidel counters. Classifying it as such "flies in the face of my understanding of international economic development. To see China as forcing us all down into a drain because its standards in terms of the environment and work conditions are so abysmal I think is a mischaracterization of what is happening in China, particularly when you compare it to work conditions in other countries at similar or lower standards of living or even higher standards of living than China's."

Keidel says that it's a "major error to think that the future of the vast majority of China's rural persons is in rural China in farming. That is an unrealistic picture of the future of China's rural persons. Their future has to be urbanizing. It has to be taking non-farm jobs or they will be desperately poor for the rest of their lives."

There are "fundamental flaws" in the notion that China "will follow a similar linear path in development as Western Europe, the United States and Japan," Muldavin replies. "Eight-hundred million peasant Chinese cannot become urban workers."

The impoverished Chinese masses "are much more desperate than these more glowing, market triumphalist depictions," says Muldavin, who chaired the Department of International Development Studies at UCLA. "If in your mind it's okay for half a billion people to suffer in the ways in which I see them suffering, as part of rationalizing during that transition, that's a big assumption on your part," Muldavin scolded Keidel. "If you care about human suffering in the world and what it might lead to, it's a big assumption about what should be an almost ethical assumption....Unless overall policies are altered to address the needs of China's vulnerable majority, Beijing will surely face more protracted and violent challenges from the country's development 'success' in the foreseeable future."

Japan Invests...(Continued from page one)

regains its leading position in the world economy will come soon," he predicted, adding: "What this means, therefore, is that the sole determining factor for the future growth of Japan's economy is innovation."

Matsuda laid out the two policy "pillars" of the country's Third Science and Technology Basic Plan: a first set of measures "setting strategic priorities for investment," a second set aimed at "reforming [its] science and technology systems." Together, they cover everything from identifying technologies that will receive research funding to enticing foreign scientists to reside and work on Japanese soil.

The Third Basic Plan's budget, 25 trillion yen ($226.4 billion) over a five-year period that began last month, was nailed down in talks between Matsuda and Japanese Finance Minister Sadakazu Tanigaki late last year.

That figure anticipates an increase over R&D spending of 17.6 trillion yen ($159.4 billion at the current exchange rate) under the First Basic Plan, in place between 1996 and 2000, and of 21.1 trillion yen ($190.2 billion) under the just-concluded Second Basic Plan. But the increase, even if significant, is only part of a steady climb.

"Despite the prolonged economic downturn over the past ten years, the Japanese government has spent more on research and development investment than on any other policy area," Matsuda observed, adding that Japan's S&T budget "has been growing at a faster rate than other budget priorities."

Striving to "make the most effective use" of what he called "this precious science and technology investment," Matsuda said, Japanese policy makers have generally undertaken to set outcome targets for R&D, improve evaluation systems and eliminate overlapping distribution of research funds.

Specifically, they have sought a balance between "diversity," which he called "the key word for resource allocation" in the domain of basic research, which together with university education will receive 1.45 trillion yen ($12.8 billion) in the current fiscal year; and the realization of well-defined goals in the domain of "policy mission-oriented research and development," whose current-year budget is 1.79 trillion yen ($16.2 billion).

Japan's "strategic priority setting" in the latter domain has involved identifying two sets of four "promotion areas." The first tier comprises life science; information and communication technology; environmental science; and nanotechnology and materials.

The second tier "promotion areas," includes energy; MONODZUKURI, loosely translated as "manufacturing technology" but defined by Japan's Ministry of Economy, Trade and Industry as "the art and joy of making things as perfectly and efficiently as possible while respecting nature in terms of both the materials used and the environment"; social infrastructure; and frontier sciences.

Of this year's 1.79 trillion yen, 286 billion yen ($2.6 billion), or 16 percent, will go to 62 "strategic S&T priorities" chosen through what Matsuda called "a process involving many experts" from 273 candidate research themes. "This is the first time that such a clearly defined investment strategy has been introduced in the history of Japanese science and technology policy," he noted.

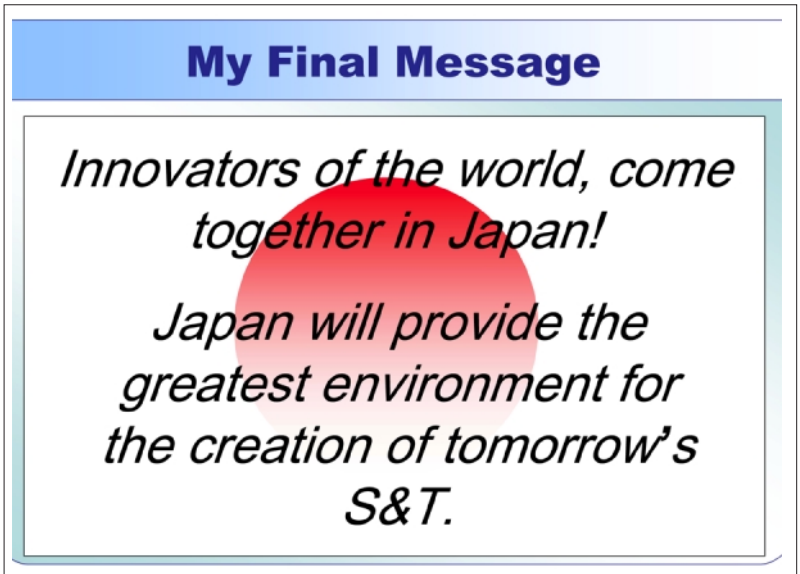
As examples of these priorities he pointed to:

- Life Science: "Connecting basic research and the development of new drugs and other clinical technologies (Bioinformatics)";
- Information Technology: "Winning international competition in the next-generation super computers";
- Environment: "Taking international leadership for overcoming global warming";
- Nano & Materials: "Making breakthroughs with innovative materials (Nano-device sensors)";
- Energy: "Breaking the dependency on oil in transportation services";
- MONODZUKURI: "Further strengthening Japan's MONODZUKURI-tech (Energy-saving MONODKUZURI-tech)";
- Social Infrastructure: "Minimizing damages in case of a catastrophic disaster"; and
- Frontier Science: "Transportation systems for outer-space and deep-sea utilization."

Turning to the reform of Japan's S&T systems, to which around 365 billion yen ($3.3 billion) is to be devoted in the current fiscal year, Matsuda pointed to an emphasis on human-resource development. "Science and technology in Japan will depend on whether or not we can nurture motivated researchers who enthusiastically engage in intellectually creative activity," he said.

Among the initiatives to be undertaken will be creating mechanisms that "allow young researchers to launch their own research vigorously"; increasing opportunities for female researchers by setting "a numerical hiring target of 25

(Continued on page seven)



(Source: Iwao Matsuda, Japan's Minister of Science & Technology)

Science Academy Says It's Not Worth Figuring Out Foreign Content Of U.S. Exports

It is impossible to try to determine the foreign content of U.S. exports and the U.S. content of foreign imports, the National Academies of Sciences has concluded. Congress asked the Academies to study the issue, due to growing concern about offshore outsourcing. Congress wanted to know whether or not the U.S. was in fact losing more jobs due to the growing imports of parts and components that go into end products for export.

"The content question," which is how the National Research Council committee studying the issue describes it, cannot be answered because data "simply do not exist," says their report. Capturing content data of imports and exports "would require a way to trace imports through the economy and ultimately to export to the final domestic use," says the study. "...Clearly tracking exports and imports on this scale would be an impractical task."

So their formal answer to Congress was this: "It is impractical to directly measure the foreign content of U.S. exports and the U.S. content of imports to the United States."

Since it couldn't answer the question it was posed, the committee then decided to answer another one that it created: If there was a way to determine foreign content of U.S. exports and U.S. content of imports, would that be useful in understanding how global trade is impacting the U.S. workforce?

Their answer: No. "Measuring the U.S. content of imports and the foreign content of exports more accurately would not lead to any significant gain in the scientific understanding of the causes and consequences of offshoring on the state of the U.S. economy," the committee concluded.

The members of the committee who came to this conclusion were committee chair Edward Leamer, director of the UCLA Anderson Forecast; Gary Gereffi, director of the Center on Globalization, Governance and Competitiveness at Duke University; Gene Grossman, chair of Princeton University's Economics Department; Lawrence Katz, professor of economics at Harvard; Catherine Mann, senior fellow at the Institute for International Economics; Robert McGuckin, director of economic research at The Conference Board; Robert Scotte, director of international programs at the Economic Policy Institute; Matthew Slaughter, professor at the Tuck School of Business at Dartmouth; and Michael Storper, professor of regional and international development at UCLA. Their report "Analyzing the U.S. Content of Imports and the Foreign Content of Exports," is available from the National Research Council, www.nap.edu.

Japan... (Continued from previous page)

percent," which Matsuda nonetheless apologized for as low by U.S. standards; "making research environments more competitive"; and increasing incentives for senior researchers.

"I have heard that leading researchers in the United States, for example, can be paid salaries as high as $500,000 or more," said Matsuda, an amount he called "unimaginable" in his own country.

"We need to transform our organizations so that we can make a drastic shift over to a merit-based system," he said. "Then outstanding people can receive pay and other treatment they deserve in Japan, too." This, he hopes, will attract foreigners to the 30 "top world" centers of excellence in research whose establishment is envisioned under the Third Plan.

Among the factors underlying Japan's emphasis on building itself into a powerhouse of scientific and technological innovation — into "Innovator Japan," as Matsuda called it — are the country's 90 percent dependence on imported oil; the aging and, since last year, shrinking of its population; and the shadow of such environmental issues as global warming.

Last is concern for the country's ability to keep up in world markets. "Competition in Asia, as you know, is growing yet more intense," Matsuda said. "More than ever before, Japan needs to create its own original science and technology and to aim to become a world-class innovator. Otherwise, in 20 or 30 years' time, we will find it hard to maintain our present economic status in the world." Japans trade surplus with the United States last year increased by 9.4 percent to $87.2 billion.

MANUFACTURING & TECHNOLOGY NEWS (ISSN No. 1078-2397) is a publication of
Publishers & Producers, P.O. Box 36, Annandale, VA 22003. On the Web at: www.manufacturingnews.com.
PHONE: 703-750-2664. FAX: 703-750-0064. E-MAIL: editor@manufacturingnews.com.
Annual Subscription Price: $495. Frequency: Twenty-two times per year.
Editor & Publisher: Richard A. McCormack (richard@manufacturingnews.com)
Senior Editor: Ken Jacobson (202-462-2472, ken@manufacturingnews.com)
Web Technical Coordinator: Krishna Shah (krishna@manufacturingnews.com)
Business Manager: Anne Anderson (anne@manufacturingnews.com)
Electronic distribution of a PDF version of this publication within an organization is available at a reasonable rate.

Subscribers have access to the Manufacturing & Technology News Web site, which includes a keyword searchable archive of the past eight years of Manufacturing & Technology News. PDF versions of the publication are available for download. Register in the "Subscribers Only" section at www.manufacturingnews.com for electronic delivery.

Defense Science Board Says ManTech Is Key To Reducing Cost Of Weapons

The Defense Manufacturing Technology (ManTech) program needs a big shot in the arm, according to the Defense Science Board (DSB). The ManTech program must be given greater resources and support in order to help solve a myriad of "pervasive" problems plaguing the development and production of increasingly costly military weapons systems, says the DSB in a report issued earlier this year.

"ManTech has the capacity to have an impact on all phases of development activities and, as such, has a place in both the science and technology and acquisition communities — which sets the program apart," says the DSB in its report entitled "The Manufacturing Technology Program: A Key to Affordably Equipping the Future Force."

"The value of manufacturing technology is not well understood at all levels of management in DOD, which impacts the ManTech program directly," says the report. "Today's management approach and program structure does not and will not lead to a coherent DOD manufacturing investment strategy."

Among the recommendations that could have a widespread impact on the development and production of weapons is the proposal for DOD to adopt the ManTech-created concept of Manufacturing Readiness Levels (MRLs). The DSB task force says these should be completed this year "and introduced into the 5000 series acquisition regulation." MRLs would provide program managers with the go-ahead to enter the production phase of a weapon system using "production-ready, cost based prototypes," says the DSB.

The task force also recommends a substantial increase in funding for Mantech, and believes that $100 million of the $1 billion that DOD spends on the Small Business Innovation Research (SBIR) program each year be directed toward ManTech selected topics.

The DSB says "the time to act is now....[R]educing the cost of future weapons systems will be critical." The report is located at http://www.acq.osd.mil/dsb/reports/2006-02_Mantech_Final.pdf.

The DSB task force was chaired by Jacques Gansler, the Under Secretary of Defense for Acquisition, Technology and Logistics from November 1997 through January 2001. Gansler is on the faculty at the University of Maryland School of Public Affairs and leads the school's new Center for Public Policy and Private Enterprise. He recently spoke with *Manufacturing & Technology News* editor Richard McCormack about the ManTech program and the task force recommendations. Here's what he had to say:

Question: Why did the Defense Science Board get interested in DOD's Manufacturing Technology program?

Gansler: We're trying to revive it and we're trying to take a broader perspective other than just worrying about how you build something in the factory.

Q: Is ManTech the vehicle for doing this?

Gansler: Not exclusively, but there are parts of Mantech that might help. The recommendation to put part of the SBIR program through ManTech might help. The need to design things that are producible and affordable is way beyond ManTech. It's an S&T problem from DARPA through the service labs on forward, and that is an uphill fight.

Q: Why is that an uphill fight given the situation with delays in production, escalating costs of weapons and questions about the health of the defense industrial base?

Gansler: Traditionally, defense weapons systems have been based upon staying ahead technologically in terms of performance and not in terms of cost, quantity, producibility or even reliability. In the last six years, we've been living in a rich man's world and in a rich man's world if the system costs more you buy it anyhow.

In the future, when dollars become short, then you'll be in an environment in which costs do matter. At the end of the Cold War, the defense budget plummeted by $100 billion, most of which came out of procurement. As a result, people started worrying about how much things cost. That will happen again, maybe in '08. Once we don't get a $100-billion supplemental, there will be an, "Oh, gosh. We don't have enough money."

Q: What's been DOD's response to the Mantech study?

Gansler: Very positive. In connection with our task force, they have required that [the military services] develop an action plan for implementation. That's what we felt was necessary.

Q: Where does ManTech fit in the overall scheme of things given that it is an orphaned program?

Gansler: That is an interesting point we debated quite a bit. In a sense, it's in the transition period, but the impact has to be early in S&T and it has to be late in production programs, so it spans the full spectrum. As a result, it's hard to find a home.

The typical people in the science and technology community don't tend to think about how they are designing something that is low cost or producible. They are designing something that can work at higher performance. We're trying to get them to think that not only will it work sometimes but that it will work all the time and it's reliable, producible and affordable. You have to be able to buy it in sufficient quantities so that it has military value rather than ending up with one super airplane.

Q: Is the program constrained by resources?

(Continued on next page)

Mantech...(Continued from page eight)

Gansler: I wouldn't start at the resource question or even the organization question because it has to start at the leadership question. If people think it's really important that the philosophy of manufacturing play a major role then I think it gets instilled into the system. That has to come from the top down.

We recommended is the use of the Manufacturing Readiness Levels — MRLs — in the same way that Technology Readiness Levels are being used. They are putting that into the system and that will be a significant way of getting people to focus on it. If you get to any major milestone and you haven't met that test — and that includes not just whether you can produce it but that is it affordable because we made sure that cost is a consideration at each one of those milestones early on — then that is a way of getting people's attention focused on it.

Q: Is the infrastructure in place to focus on manufacturability?

Gansler: There will be more people focused on it when cost becomes an issue.

Q: I thought cost was an issue; given that the war, maintenance, personnel and health care are consuming so much of the defense budget.

Gansler: Well look at what happened. Last year there was a budget of $90 billion for logistics support and maintenance, and with the supplemental it went to $126 billion. In that kind of a world you pay much less attention to how much things cost and whether they will do the job. The first shocker will be when the budget doesn't increase and the supplemental is not approved.

Q: Should ManTech program managers take a broader view. Should they be doing something different?

Gansler: What they need is some higher level support. ManTech is being resisted by the science and technology community and by the people who allocate the budget and even by the priorities of the personnel system. It used to be there was a career path for these people. That comes from the leadership saying this is important.

Q: Why hasn't DARPA played a role in manufacturing?

Gansler: They used to. We had [Director] Tony Tether talk to us. We heard the right things back from him so we'll see if they put some programs in place.

Q: Is there a role for Congress?

Gansler: Yeah, get out of it. Congress has been moving in the opposite direction and the unintended consequences of all of the requirements that they are increasingly placing are counter to the globalization trend. They are making our equipment both lower in performance and higher in cost.

If you look at what is happening today, you see a debate about how people are using titanium and are not sure of where it's coming from. They're worried about it being a violation of the law. That is a total denial of globalization. The Duncan Hunter bill advocating Buy America will lower the performance and increase dramatically the cost of every weapon system and would weaken our national security position.

Q: Should U.S. tax dollars be funding the creation of overseas capabilities because as production moves offshore, the design, R&D and innovation goes with it and we plant the seeds of our own demise. Why should the United States government be funding the creation of foreign supply chains?

Gansler: The question is does the United States need to fund national security? How do you want to get the most national security for $450 billion? Are you going to spend every dollar of that in the United States and get a lot lower national security? If you have to pay twice as much to get it in the United States and you get an inferior product in the United States then how is that helping national security?

Tax money is being spent to have the best national security that we can have. People care about that at the first level. Of course they care about their jobs and you have to address that. But this blanket statement, "I won't spend tax dollars overseas," leads to the conclusion that you're willing to accept a much lower capability and far fewer systems to meet my national security objective.

The easy case would be shipbuilding. You have to build every ship in the United States. Do you need to build every ship in the United States? You would be much better off building some of them at much lower cost and much higher performance someplace else.

Q: One of many arguments against that is those overseas shipyards are being heavily subsidized by their governments and we'd just be giving U.S. taxpayer dollars to other governments to further fortify their industry.

Gansler: Then we're taking advantage of somebody else's tax dollars. What's wrong with that? If they want to support the United States is that bad? That's the counter argument. I'm not taking a firm position one way or the other, but I do think that there is an issue on both sides of that argument.

Proposed ManTech-Related Funding for Fiscal Years 2007–2010 (millions of dollars)

	2007	2008	2009	2010
Service ManTech	318	385	452	528
D-Line	50	50	50	50
SBIR*	60	80	100	100
Total	428	515	602	688
DARPA**	30	40	50	50

** Part of SBIR budget*

*** Part of DARPA program budget*

Calendar Of Upcoming Events

It's time to get out and refresh yourself — discover new markets, product ideas, places and people. Below you will find a list of events that are of interest to a wide segment of the community. If you are sponsoring an event, please send us your conference announcements via e-mail at calendar@manufacturingnews.com.

May 17 International Electronics Manufacturing Initiative (iNEMI) Workshop on its 2007 Roadmap, Herndon, Va.: http://www.inemi.org/cms/calendar /iNEMI_Roadmap_North_American_workshop.html.

May 17 - 19 Nano Business 2006, New York, N.Y. Sponsored by the Nano Business Alliance: http://www.NanoBusiness2006.com.

May 17 - 19 Lean Accounting and Performance Management, University of Kentucky's Center for Manufacturing, Lexington, Ky.: http://www.mfg.uky.edu/lean/champions/accounting.html.

May 21 - 22 IEEE Transmission and Distribution Conference, Dallas, Texas: http://www.ieeet-d.org/.

May 22 - 23 Deploying and Integrating Lean and Six Sigma for Government, Tysons Corner, Va. E-mail: team@iqpc.co.uk.

May 22 - 24 RFID Implementation: How to Evaluate, Justify and Deploy Your RFID Solution, Kansas City, Mo. Sponsored by the RFID Alliance and the Univ. of Kansas: http://www.continuinged.ku.edu/programs/rfid/overview.php.

May 23 - 25 EASTEC 2006; W. Springfield, Mass., http://www.sme.org.

May 23 - 25 Rapid Prototyping & Manufacturing; 3D Scanning, Reverse Engineering, Analysis and Inspection, St. Charles, Ill., Sponsored by SME: http://www.sme.org.

May 30 - June 2 ECWATECH-2006, the 7th International Trade Fair and Congress on Water Technology, Moscow, Russia, http://2006.sibico.com/.

May 30 - June 2 Electronic Components and Technology Conference, San Diego, Calif., http;//www.ectc.net.

May 31 - June 1 Process Mapping and Analysis, Falls Church, Va. Sponsored by the University of Virginia. (Also in Virginia Beach on June 22-23): 434-982-2779.

June 5 - 7 Applied Lean Ergonomics, Ann Arbor, Mich., http://www.humantech.com/seminars.

June 5 - 9 Mediterranean School on Meso-Scale Metrology (MSMM), Alghero, Italy, http://www.sar.sardegna.it/MSMM/.

June 6 - 7 Materials Declaration Issues for Compliance with EU's Restriction of Hazardous Substances, Rosemont, Ill. sponsored by IPC, www.ipc.org/MDConf.

June 7 - 8 Quality Expo Detroit, Novi, Mich. Sponsored by the Automotive Industry Action Group: http://www.aiag.org.

June 7 - 8 NOx Emissions and Source Monitoring, San Jose, Calif. Sponsored by the ISA Safety Division: http://www.isa.org/nox.

June 7 - 8 China's Enforcement of IPR: Movement of Counterfeited and Pirated Products Into the U.S. and Their Dangers, Washington, D.C. Sponsored by the U.S.-China Commission: http://www.uscc.gov.

June 12 - 16 Lean Logistics & Supply Chain Ten-Day Certificate Program, University of Mich.'s Center for Professional Development: http://cpd.engin.umich.edu.

June 14 - 16 NanoBio-Europe 2006, Grenoble, France, http://www.nanobio-europe.com.

June 14 U.S. Electronics Manufacturing Industry: IPC's Capitol Hill Day, Washington, D.C., www.ipc.org/Caphillday.

June 18 - 21 International Congress of Nanobiology and Nanomedicine, San Francisco, Calif., http://nanotechcongress.com.

June 19 - 21 Moving up the Value Chain, Glasgow, Scotland, http://www.euroma2006.com/.

June 20 - 21 International Forum on Design for Manufacture and Assembly, Providence, R.I., www.dfma.com/forum.

June 22 GovConectx, Fort Belvoir Conference & Exhibition, Fort Belvoir, Va., http://www.nhffoundations.net/govconectx.

June 22 - 23 Measuring and Improving Processes, How to Move Toward Six Sigma Performance, Virginia Beach, Va. Sponsored by the University of Virginia: 434-982-2779.

June 22 - 25 International Conference on Manufacturing Engineering Education, Cal Poly State University, San Luis Obispo, Calif. Sponsored by the International Institution for Production Engineering Research: http://www.ime.calpoly.edu/mfeeconference/

June 28 - 29 Six Sigma and Process Excellence for Financial Services, Vienna, Va. Sponsored by the International Quality and Productivity Center: http://www.sixsigma.com/2638a.

June 28 - 29 Global Six Sigma Summit, Las Vegas, Nev., http://www.gsssa.com.

July 10 Impact on Chinese Manufacturing on U.S. Auto and Auto Parts Industries, Dearborn, Mich. Sponsored by the U.S.-China Commission: http://www.uscc.gov.

(Continued on next page)

Conferences...(Continued from page ten)

July 13 - 14 Annual Product Safety & Liability Conference, Brookfield Wisc. Contact Randall Goodden at rgoodden@go.com.

July 15 - 22 EuroScience Open Forum, Munich, Germany, http://www.esof2006.org.

July 17 - 21 Coordinate Metrology Systems Conference, Orlando, Fla., http://www.cmsc.org.

July 25 - 28 Shanghai International Machine Tool Fair, Shanghai New Intl. Expo Centre: www.eastpo.net.

August 1 - 3 Lean Six Sigma, Christiansburg, Va. Sponsored by TBM: 866-532-6826.

August 3 - 4 China's Security-Related Influence in Asia; China's Energy Activities, Washington, D.C. Sponsored by the U.S.-China Commission: http://www.uscc.gov.

August 7 - 11 Automotive Management Briefing, Traverse City, Mich. Sponsored by the Center for Automotive Research, http://www.cargroup.org /mbs2005/index.htm.

August 15 - 17 Just-In-Time Supply Chain, University of Kentucky's Center for Manufacturing, Lexington, Ky.: http://www.mfg.uky.edu/lean/ champions/time.html

August 22 - 23 China's Use of U.S. Capital Markets; Exposure of U.S. Banks Investing in China's Financial System and Exchange Rates, Washington, D.C. Sponsored by the U.S.-China Commission: http://www.uscc.gov.

August 29 - September. 2 5th China International Equipment Manufacturing Expo., Shenyang, http://www.chinaview.cn.

September 6 - 13 IMTS 2006, Chicago: www.imts.com.

September 12 - 14 Aerospace Manufacturing and Automated Fastening Conference & Exhibition, Toulouse, France. Sponsor: SAE International, http://www.sae.org/events/amaf/.

September 13 - 14 Lean Six Sigma Summit West, San Francisco, Calif., http://www.sixsigmasummit.com/NA-2601/ediary.

September 14 - 15 China's Proliferation Record and Its Role In Resolving The North Korea Nuclear Crisis, Washington, D.C. Sponsored by the U.S.-China Commission: http://www.uscc.gov.

September 20 - 22 Second Multi-Material Micro Manufacturing: Technologies and Applications Conference, Grenoble, France. Organized by the European Union's Four-M Center of Excellence, http://www.4m-net.org/Conference.

September 21 - 22 Lean Accounting Summit, Orlando, Fla., www.leanaccountingsummit.com/home.asp.

September 26 - 27 Applied Lean Ergonomics, Ann Arbor, Mich., http://www.humantech.com/seminars.

September 27 - 29 Lean Accounting and Performance Measurement, University of Kentucky's Center for Manufacturing, Lexington, Ky., www.mfg.uky.edu/lean/champions/accounting.html.

October 11 - 13 National Nuclear Security Administration's Future Technologies Conference, Washington, D.C., www.dcslsinc.com/technology.

October 16 - 20 Association for Manufacturing Excellence, Annual Conference, Dallas, Texas, http://www.ame.org

October 16 - 20 Human Systems For Lean, University of Kentucky's Center for Manufacturing, Lexington, Ky., http://www.mfg.uky.edu/lean/c hampions/hrlm.html

October 19 - 22 12th Annual Manufacturing in Mexico Summit, San Carlos, Sonora, Mexico, www.offshoregroup.com/summit.asp.

October 25 - 26 European Six Sigma Summit, Amsterdam, http://www.sixsigmaiq.com/GB-2591/ediary

October 25 - 26 International Conference on Hydrogen and Fuel Cell Technologies, Hamburg, Germany, www.h2expo.com.

October 26 - 29 Manufacturing in Mexico Summit, San Carlos, Sonora, Mexico, http://www.offshore group.com/summit.asp.

October 29 - Nov. 3 Lean Executive Leadership Institute, University of Kentucky's Center for Manufacturing, Lexington, Ky., http://www.mfg.uky.edu/lean/executive/leli.html.

October 30 - Nov. 2 International Conference of Nanotechnology, San Francisco, http://nanotechcongress.com/.

November 5 - 7 IT For Manufacturers Summit, Dallas, Texas. Sponsored by Marcus Evans: http://www.manufacturingtechnologysummit.com.

November 5 - 7 Relocation Summit, Colorado Springs, Colo. Sponsored by Marcus Evans: http://www.relocationsummit.com.

November 5 - 10 ASME International Mechanical Engineering Congress, Chicago, Ill.: www.asme.org

November 8 - 10 Lean Accounting and Performance Measurement, University of Kentucky's Center for Manufacturing, Lexington, Ky., http://www.mfg.uky.edu/ lean/champions/accounting.html.

Recent Report, Studies, Resources

EXPORT PROMOTION: TRADE PROMOTION COORDINATING COMMITTEE'S ROLE REMAINS LIMITED finds that between 2002 and 2006 the federal government's trade promotion related budget dropped by about one-third. Budgets at the Department of Agriculture and the Ex-Im Bank accounted for most of these declines. "Coordination challenges persist among the Departments of Commerce, State, and Agriculture regarding the allocation of overseas staff for trade promotion activities," says the GAO study. There is only anecdotal information on small companies' participation rates in trade promotion activities. The report is located at http://www.gao.gov/new.items/d06660t.pdf.

NANOMATERIALS IN THE WORKPLACE: POLICY AND PLANNING WORKSHOP ON OCCUPATIONAL SAFETY AND HEALTH says the U.S. government is providing insufficient funding to understand risks that nanomaterials pose to the health of workers in the nanotechnology industry, according to the RAND Corporation. "Government resources should focus on assessing the toxicity of nanomaterials, understanding how workers are exposed to such materials and determining the effectiveness of measures to safeguard the health of workers," says RAND. "The multibillion-dollar investments in nanotechnology being made by private firms and the federal government will continue to be at risk if such steps are not taken."

The current system cannot handle assessing the hundreds of new nanotechnology products that will be introduced during the next 10 years, said James Bartis, lead author of the report. "Responsible development means devoting more funding and other resources to safety issues, especially as it applies to worker safety." The federal government has directed more than $1 billion annually toward the development of nanotechnology. But less than $10 million is being spent on research relevant to understanding and managing the risks of occupational exposure to nanomaterials. "Workers are already being exposed," said Bartis. "But we don't know what exposure levels are safe and where serious health consequences could occur."

Added RAND researcher and report co-author Eric Landree: "We expected worries from labor and the occupational health experts. What surprised us was how strongly industry and the insurance sector supported this view. They are worried about their workers' health and also the potential legal consequences."

Printed copies of the report can be ordered by calling 877-584-8642.

NATIONAL CENTER FOR MANUFACTURING SCIENCES' NANOTECHNOLOGY SURVEY: http://www.ncms.org /publications/PDF/05NCMSNanotechnologySurveyAbstract.pdf.

FOREIGN HOLDINGS OF SECURITIES from the Department of Treasury found that foreigners increased their holdings of U.S. securities for the year ending June 2005 by $754 billion. Foreigners held a total of $6,863 billion in U.S. security investments in 2005, up from $6,109 billion in 2004. Of that total, $2,143 billion was held in U.S. equities, up from $1,930 billion in 2004; $4,118 billion was held in U.S. long-term debt securities, up from $3,501 billion in 2004; and $602 billion was held in U.S. short-term debt securities, up from $588 billion in 2004. The report is located at http://www.treas.gov/tic/fpis.html.

NATIONAL SAVING: CURRENT SAVING DECISIONS HAVE PROFOUND IMPLICATIONS FOR OUR NATION'S FUTURE WELL-BEING, GAO-06-628T, http://www.gao.gov/new.items /d06628t.pdf.

INDUSTRIAL FUNDING OF ACADEMIC R&D CONTINUES TO DECLINE, a report from the National Science Foundation, says industry support for university science, engineering, research and development fell in 2004 for the third consecutive year. While private investment fell 2.6 percent that year, federal government investment rose 10.7 percent. Federal spending on university research totaled $27.4 billion in 2004. Industry funding of university research: $2.1 billion. Almost half the federal funds went into research into the biological and medical sciences. Psychology and mathematics received the least amount of government support.

The Department of Health and Human Services provided the most to university researchers, $14.1 billion. NSF provided the second largest amount, $3.2 billion, mostly in support of R&D in engineering and the biological, computer, environmental and physical sciences. Johns Hopkins ranked highest in R&D expenditures in 2004. http://www.nsf.gov/statistics/infbrief/nsf06315/

AMERICA'S PRESSING CHALLENGE — BUILDING A STRONGER FOUNDATION from the National Science Foundation finds that total global R&D spending has increased from $377 billion in 1990 to $810 billion in 2003. U.S. innovation is under competitive pressures from countries that are seeking "advantage by building indigenous S&T infrastructure, attracting foreign investments and importing foreign talent," says the report located at http://www.nsf.gov/statistics/seind06/.

INNOVATION AND SMALL BUSINESS PERFORMANCE: EXAMINING THE RELATIONSHIP BETWEEN TECHNOLOGICAL INNOVATION AND THE WITHIN-INDUSTRY DISTRIBUTIONS OF FAST GROWTH FIRMS from the Small Business Administration finds that industries more technically oriented (as evidenced by increased employment of scientists and engineers) are more accommodating to new fast growing private firms while production oriented industries are more accommodating to large fast growing public firms. The report is located at http://www.sba.gov/advo/research/rs272tot.pdf.

DRAFT PLAN FOR THE CREATION OF THE EUROPEAN INSTITUTE OF TECHNOLOGY: ftp://ftp.cordis.lu/pub/fp7/docs/eit_en.pdf.

(Continued on next page)

Recent Reports...(From page 12)

DEFENSE ACQUISITIONS: BUSINESS CASE AND BUSINESS ARRANGEMENTS KEY FOR FUTURE COMBAT SYSTEM'S SUCCESS finds the $200 billion program will be hard pressed to succeed. "The elements of a sound business case for such an acquisition program—firm requirements, mature technologies, knowledge-based acquisition strategy, a realistic cost estimate and sufficient funding—are not yet present," says the GAO study. "FCS began product development prematurely in 2003. Since then, the Army has made several changes to improve its approach for acquiring FCS. Yet, today, the program remains a long way from having the level of knowledge it should have had before starting product development. FCS has all the markers for risks that would be difficult to accept for any single system, much less a complex, multi-system effort. These challenges are even more daunting in the case of FCS not only because there are so many of them but because FCS represents a new concept of operations that is predicated on technological breakthroughs. Thus, technical problems, which accompany immaturity, not only pose traditional risks to cost, schedule, and performance; they pose risks to the new fighting concepts envisioned by the Army." The 19-page report (GAO-06-478T) is located at http://www.gao.gov/new.items/d06478t.pdf.

DEFENSE LOGISTICS: MORE EFFICIENT USE OF ACTIVE RFID TAGS COULD POTENTIALLY AVOID MILLIONS IN UNNECESSARY PURCHASES, GAO-06-366R: http://www.gao.gov/new. items/d06366r.pdf.

UNMANNED AIRCRAFT SYSTEMS: IMPROVED PLANNING AND ACQUISITION STRATEGIES CAN HELP ADDRESS OPERATIONAL CHALLENGES, GAO-06-610T, 28 pages: http://www.gao.gov/new.items/d06610t.pdf.

SPACE ACQUISITIONS: IMPROVEMENTS NEEDED IN SPACE SYSTEMS ACQUISITIONS AND KEYS TO ACHIEVING THEM, 21 pages: http://www.gao.gov/new.items/d06626t.pdf.

NASA Science...(From page five)

involvement is strongest — safe, efficient air-traffic management and environmentally benign aviation operations — are arguably the areas in which users need fairly well-proven technologies to be delivered and in which NASA's technical capabilities are in some respects superior." The report further notes that "these are also areas where the market is unlikely to produce the optimum level of innovations."

If ARMD is to "sustain its relevance and support," the report states, it "should have a portfolio quite diversified in terms of the stage of technology being developed, even if that means the portfolio will be reduced" on account of the high cost of "technology demonstrations, prototype development, and other activities to reduce the risks of applying new technology."

A prepublication version of the report may be viewed online at http://fermat.nap.edu/books/0309101883/html/.

GLOBAL SHIPBUILDING INDUSTRIAL BASE BENCHMARKING STUDY - PART 1: MAJOR SHIPYARDS, from the Department of Defense's Office of Industrial Policy is located at http://www.acq.osd.mil/ip/docs /fmi_industry_report.pdf.

ANNUAL INDUSTRIAL CAPABILITIES REPORT TO CONGRESS from the Department of Defense's Office of Industrial Policy is located at http://www.acq.osd.mil/ip/docs/annual_ind_cap_rpt_to_congress-2006.pdf.

FOREIGN SOURCES OF SUPPLY: ASSESSMENT OF THE U.S. DEFENSE INDUSTRIAL BASE from the Department of Defense's Office of Industrial Policy is located at http://www.acq.osd.mil/ip/docs/fy_2005-812_report.pdf.

CHINA'S IMPACT ON METALS PRICES IN DEFENSE AEROSPACE from the Department of Defense's Office of Industrial Policy is located at http://www.acq.osd.mil/ip/docs/china_impact_metal_study_12-2005.pdf.

U.S. MANUFACTURING AND THE EVOLVING GLOBAL LNG MARKET: PROSPECTS FOR LOWER ENERGY COSTS finds that "absent new sources of natural as supply, the price of this crucial energy resource is almost certain to climb steeply," according to report sponsor The Manufacturers Alliance/MAPI. Between 2002 and 2004, manufacturers increased expenditures on natural gas by 59 percent. Manufacturers in the Great Lakes region were especially hard hit, with their gas bill going up 27 percent more than the average national price paid by manufacturers. The United States imported 631 billion cubic feet of liquefied natural gas in 2005, but that should increase to 4,900 billion cubic feet by 2010, if three terminals under construction and nine that have been approved by FERC are completed. "The long-term effect of such an increase in gas supplies would be to reduce the price of gas by an estimated 21 percent," says MAPI. For a copy of the report ($50 for non-MAPI members), call Mary Pearson at 703-647-5139.

CHINA'S GROWING DEMAND FOR OIL AND ITS IMPACT ON U.S. PETROLEUM MARKETS from the Congressional Budget Office, 58 pages: http://www.cbo.gov/ftpdocs/71xx/doc 7128/04-07-ChinaOil.pdf.

INVESTIGATION OF PERFLUOROCHEMICAL (PFC) CONTAMINATION IN MINNESOTA says the soil, air and groundwater in areas around 3M's St. Paul production facilities are among the most polluted in the world. 3M, which used PFCs to make Scotchgard, Teflon, Stainmaster and Gore-Tex, discharged 50,000 pounds of the chemical per year into the local Minnesota environment, says the report by Public Employees for Environmental Responsibility (PEER) and the Environmental Working Group (EWG).

The report's release was "repeatedly impeded by state pollution control chief and former 3M executive, Sheryl Corrigan," says PEER. Research for the report was conducted by Fardin Oliaei, who resigned as the coordinator for the Minnesota Pollution Control Agency's Program on Emerging Contaminants "after Corrigan made clear she would not be able to complete her studies into the scope of pollution from perfluorochemical compounds manufactured by 3M for

(Continued on page 14)

New Reports...(From page 13)

products," says PEER.

Oliaei found PFCs in the livers, blood and flesh of fish in state waters, "some of which register the highest PFC levels ever," says the 79-page report located at http://www.peer.org/docs/mn/06_27_2_pfc_report.pdf.

VOLUNTARY REPORTING OF GREENHOUSE GASES PROGRAM from the Energy Information Administration says 226 companies undertook 2,154 projects to reduce or sequester gas emissions in 2004. Those companies reduced emissions by 2.8 percent over 2003. "Project-level emission reductions included 277 million metric tons of carbon dioxide equivalent," says the EIA. The companies reported 7 million metric tons of carbon dioxide equivalent reduction through carbon sequestration. Total U.S. greenhouse gas emissions in 2004 were 7,122 million metric tons of carbon dioxide. The full report is located at http://www.eia.doe.gov/oiaf/servicerpt/agg/pdf/sroiaf(2006)01.pdf.

U.S. GREENHOUSE GAS EMISSIONS GROW BUT INTENSITY FALLS IN 2004 finds that emissions increased by 2 percent in 2004, from 6,983 million metric tons in 2003 to 7,122 million metric tons in 2004. The Energy Information Administration says greenhouse gas emissions per unit of GDP fell from 677 metric tons per million 2000 constant dollars of GDP in 2003 to 662 metric tones per million dollars of GDP in 2004, a decline of 2.1 percent. "The 2004 increase is well below the rate of economic growth of 4.2 percent but above the average annual growth rate of 1.1 percent in greenhouse gas emissions since 1990," says the report, which is located at http://www.eia.doe.gov/oiaf/1605/ggrpt/index.html.

U.S. WINTER MUCH WARMER THAN AVERAGE found that the average temperature for the contiguous United States for Dec.-Feb. was 36.3 °F, or 1.2°F above the 1895-2005 mean, making it the fifth warmest winter on record. The mean 2005-2006 winter temperature in 41 states was above — or much above — average, with only seven states near average and none cooler than the long-term mean. The report is at www.publicaffairs.noaa.gov/releases2006/mar06/noaa06-027.html.

HOMELAND SECURITY: DHS IS TAKING STEPS TO ENHANCE SECURITY AT CHEMICAL FACILITIES, BUT ADDITIONAL AUTHORITY IS NEEDED, from the GAO: http://www.gao.gov/new.items /d06150.pdf.

U.S. CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD'S REPORT ON CHEMICAL INCIDENT SCREENING DATABASE, 9 pages: http://www.csb.gov/news_releases/docs/CSBIncidentScreeningReport.pdf.

NEW CORPORATE AVERAGE FUEL EFFICIENCY STANDARDS issued by the White House: http://www.whitehouse.gov /news/releases/2006/04/20060428-9.html.

21ST CENTURY HIGHWAYS: INNOVATIVE SOLUTIONS TO AMERICA'S TRANSPORTATION NEEDS, a report from the Heritage Foundation, says highway congestion is "contributing to a loss of economic vitality." It's time for "ordinary citizens and policymakers at the federal, state and local levels [to] decide what to do about these troublesome trends." Federal programs are no longer working, and the private sector must get involved with building the nation's infrastructure, says the report located at http://www.heritage.org (type the report's title in the search box).

2006 TRADE POLICY AGENDA AND THE 2005 ANNUAL REPORT OF THE PRESIDENT OF THE UNITED STATES ON THE TRADE AGREEMENT PROGRAM outlines an aggressive trade program for the country. The U.S. concluded trade agreements last year with Peru, Colombia and Oman. There are ongoing negotiations with Ecuador, the Southern African Customs Union, Panama, Thailand and the UAE. These countries have a combined two-way trade of $66 billion with the U.S. The USTR has also initiated free trade agreement talks with South Korea. The reports are located at www.ustr.gov

U.S. THEATRICAL MARKET, 2005 STATISTICS (a great report for movie buffs) finds that box office receipts were $9 billion in the United States last year. The 26-page report, which breaks down Hollywood hits, is produced by the Motion Picture Assn. and is located at: www.mpaa.org/press_releases/2005%20tms%20report.pdf.

HIGH-SPEED SUBSCRIBERS BY ACCESS TECHNOLOGY IN THE UNITED STATES says the U.S. broadband market has grown explosively, from 4.5 million subscribers in 2000 to 41.2 million subscribers in 2005 according to the Telecommunications Industry Association. The broadband market is expected to grow by an additional 28 million to 69.2 million by 2009, a 13.8 percent compound annual increase: http://www.tiaonline.org/business/research/mrf/.

12TH ANNUAL INDEX OF ECONOMIC FREEDOM, published by the Heritage Foundation and the Wall Street Journal, finds that of the 157 countries graded last year, 99 improved their overall scores, compared to 51 whose scores worsened and five that remained unchanged. Overall, 20 countries are classified as "free," 52 as "mostly free," 73 as "mostly unfree" and 12 as "repressed." "The countries with the most economic freedom also have higher rates of long-term economic growth and are more prosperous than are those with less economic freedom," say the report located at http://www.heritage.org.

COUNTRY REPORTS ON HUMAN RIGHTS PRACTICES FOR 2005 from the Department of State is located at http://www.state.gov/g/drl/rls/hrrpt/2005/index.htm.

CONDUCT UNBECOMING: SWEATSHOPS AND THE U.S. MILITARY UNIFORM INDUSTRY finds that uniforms are often sewn in domestic sweatshops. The report from UNITE HERE is located at http://www.behind thelabel.org/pdf/ ConductUnbecoming.pdf.

65+ IN THE UNITED STATES, FROM THE U.S. CENSUS BUREAU, 265 pages: http://www.census.gov/prod/2006pubs/p23-209.pdf.