

national legislature 2 years later and was then formally elected to office in 1968.

Today, the adult illiteracy rate has been cut by two-thirds and primary education is now universal throughout the islands. Per capita income is over \$900 a year, putting Indonesia at the edge of membership in the tigers groups. Life expectancy at birth has increased by 20 years, or 50 percent, and the rate of infant mortality has plummeted.

Perhaps the most telling measure of all, overall poverty rates, best illustrates the economic miracle which has occurred in Indonesia. From a rate of 60 percent in 1967, today less than 15 percent of the total population is now considered to live in poverty.

Indonesia's remarkable growth and development has affected every sector of society, every geographic area of this island nation, and all ethnic groups.

There is no question in my mind that these wise economic and social achievements have helped build and nurture this relatively new nation, and that the nation of Indonesia now rests on a solid foundation.

We in the United States along with our many friends in Asia and elsewhere have also benefited from the stability which has emerged in Indonesia. This stability has enabled Indonesia to move away from the earlier years of konfrontasi and toward the regional leadership role Indonesia has asserted in promoting the peaceful resolution of disputes in Southeastern Asia including Cambodia and the Sprattlys. Indonesia has become an important voice of reason throughout Asia and the third world, and is a key part of a peaceful stable Pacific.

Mr. President, I know I am joined by my colleagues in sending our very best wishes to our great friend and ally, the Republic of Indonesia, and in sending our heartiest congratulations to its distinguished President.●

#### R&D INVESTMENT AND THE FUTURE OF THE U.S. ECONOMY

● Mr. LIEBERMAN. Mr. President, the Institute for the Future has completed an important report on the future of research and development in this country. This report makes the critical connection between research and development investment and the competitiveness of American industry. This important link between R&D and our economy must not be underestimated. Without sufficient investment in R&D today, we are destined to be losers in the global economic battles of tomorrow. Government and the private sector need to work as partners to make sure that our business remains competitive, bringing jobs and prosperity to our economy.

Congress is currently contemplating a major shift in our R&D policy. In their zeal to balance the budget, many Members have forgotten why we are

striving to balance the budget. The reason we need to balance the budget is to increase our economic prosperity. Therefore, it is counterproductive to balance the budget by cutting spending in areas that are adding to our economic prosperity. We are on the verge of making the mistake of cutting investments in the very areas that we are trying to stimulate. R&D is one of those areas. We are making unprecedented cuts in R&D, departing from an R&D policy that has enjoyed bipartisan support for 50 years, since the end of World War II.

I have been working hard in support of research and development initiatives in Congress to promote many of the objectives put forth in the report from the Institute for the Future. We are currently engaged in a battle to save the Department of Commerce, business' seat at the Cabinet table. Those in Congress who seek to dismantle the Department of Commerce have not recognized that Government has a role to play in partnership with private industry to stimulate the technology development that will be the foundation of the next generation of products in the global marketplace. The Department of Commerce also performs the basic science that is required to set standards that are the critical benchmarks of modern industry. Other programs educate small- and mid-size industry in state-of-the-art technologies that allow them to compete in an increasingly fierce international competition for consumers. In addition to its R&D functions, the Department of Commerce performs trade functions that promote and protect our interests abroad.

Government also has the responsibility of providing an economic environment that promotes R&D in the private sector. I am currently involved in legislation in two areas that will have a significant impact on R&D investment. I am working on a bipartisan basis to draft legislation to make the R&D tax credit permanent and more inclusive. Business cannot function in an uncertain economic environment. To make good business decisions, particularly investment in R&D, business needs to have reliable and well defined tax laws regarding R&D tax credits. A permanent R&D tax credit will provide business with this certainty. I have also introduced a bill with Senator HATCH which provides a 50-percent across-the-board exclusion on capital gains with an increased exclusion for qualified small businesses. The bill has a dozen cosponsors, spanning the range of the Senate's political spectrum. This change in capital gains taxes should encourage capital investment, including investment in new businesses which are bringing new technologies to market, and new jobs to our work force.

These efforts are particularly important in the current economic climate. Decreasing product life-cycles and increasing competition is forcing indus-

try to focus on shorter time scales, not the longer time horizons required for high risk R&D. We must make sure that there are incentives that encourage investment in long-range, high-risk R&D. These private sector programs, however, are only a complement, not a replacement for federally funded R&D efforts. The Government's role in science and technology tends to be longer term and in areas where industry does not invest. Industry is not prepared to undertake the risk that longer term R&D entails. Private sector R&D tends to be increasingly short-term, and focused on areas where there will be a clear short-term return. We need increasing investment in both Government and private sector R&D, yet we are faced with declining private sector R&D investment and major cuts by the new Congress in Government's R&D. Both of these problems must be addressed if the United States is to retain its economic leadership. Our competitors are increasing their investments in both R&D arenas.

I applaud the Institute for the Future in their efforts to research the current R&D climate and to delineate goals for the future. As partners, private industry and Government can lay the groundwork for effective investments in our future. At a recent event to introduce the report from the Institute for the Future, Dr. Mary Good, Under Secretary for Technology, U.S. Department of Commerce, and Richard J. Kogan, president and chief operating officer, Schering-Plough Corp., made statements concerning the critical role that research and development plays in our economy. I ask that these statements be printed in the RECORD.

The statements follow:

COMMENTS ON "THE FUTURE OF AMERICA'S RESEARCH-INTENSIVE INDUSTRIES," PREPARED BY THE INSTITUTE FOR THE FUTURE

(By Mary L. Good, Under Secretary for Technology, U.S. Department of Commerce, July 24, 1995)

First, let me say how pleased I am to have an opportunity to participate in this News Conference which announces the publication of the report entitled "The Future of America's Research-Intensive Industries". The Institute for the Future and the sponsors of this report are to be congratulated for their foresight and commitment to the long-term health of the U.S. economy. Clearly, the U.S. research-intensive industries have been one of the major vehicles for the country's economic growth since World War II. They have played a disproportionate role in the improvement of our standard of living, in the development of our industrial infrastructure, and particularly in establishing the United States as the world's leader in high-technology development. In many ways they have been the motivation for the creation of the world's leading higher education system because they generated the jobs that required high-quality graduate training in science and engineering. They appreciated and utilized the research output from our research universities, the national laboratories, and the mission agencies of the government, particularly Defense, NASA, and Energy. Less well recognized, they played a vital role in the success of entrepreneurial, high-tech startup companies that utilized

the people and technology that was nurtured in their major research centers but did not meet their internal criteria for further in-house development. Many of our successful high-tech startups over the last 30 years or so can trace their ancestry back to "parents" or "grandparents" in the research-intensive companies who grew and flourished in the years after World War II. In addition, they have provided the market for thousands of small companies, first, second and third tier suppliers who have flourished over the same period of time.

The success of this industry, as so capably defined by this report, has been the result of both government and business foresight in the development of a research and development infrastructure in the private sector, the government, and academia. This infrastructure provided the intellectual capital required for our industry to excel. However, it was developed at a time when the government motivation was substantially based on defense needs. The industry had a world competitive position that encouraged long-term investment in R&D that benefited it directly, and indirectly spilled over to provide great social benefit ranging from the creation of entirely new industries to the development of technology based, civilian infrastructure.

As the report documents, the end of the Cold War and the rise of many able competitors all over the world have changed dramatically the position and behavior of both the government and the industry in their role in the R&D infrastructure which has sustained them over the last 50 years. The questions addressed by the report are vital to our country's future and the ability of our children and grandchildren to enjoy the same opportunities and quality of life that we have. The conclusions of the report and their implications for public policy must not be ignored. The recommendations require active government participation with the industry in working out the new paradigm for R&D infrastructure which is appropriate for the 21st century. To suggest that the solution to these problems belongs to the industry alone and that it is time for the government to provide significantly less resources and investment in this area so vital to economic growth is to declare defeat in the economic security battles that are raging around the world today. Our future depends on the realignment of a greater share of our government funded R&D effort to civilian industries; the continued support of university research, both basic and applied science and engineering; the cultivation of a core of the "best and the brightest" students to seek an education in science and engineering; and the encouragement of industrial R&D growth over time. The global market of today may well create the forces which cause individual companies to realign and adjust their R&D resources to be economically successful. However, those same forces may cause the United States as a country to under-invest in the future where our R&D intensive industries are world players but not the overall contributors to the nation's well-being that they have been in the past. Thus, public policy must be developed which maintains the results of our Cold War policies but which is focused on programs and resource allocation which are appropriate for the new post-Cold War environment of today.

Let me conclude by commenting on each of the five recommendations for public policy listed in the conclusion of the report.

#### MAINTAIN FEDERAL SUPPORT FOR BASIC RESEARCH

This is a major priority for going forward. Not only must we maintain the portfolio in the universities funded by the civilian agen-

cies like NSF and NIH, we must continue at least the current level of support from the mission agencies like Defense, NASA, Energy, and Agriculture. This university research includes a significant amount of applied and engineering research which must not be removed on the fallacious argument that the government's role should be limited to "basic research".

In addition, the role of a segment of the government laboratories in fundamental research must be re-examined and strengthened to provide facilities and long-term programs which support and supplement both the civilian industry and academic efforts.

#### ENCOURAGE LONG-TERM PRIVATE INVESTMENT FOR R&D

An environment must be created that induces both U.S. industry and U.S. subsidiaries of foreign-owned firms to invest in R&D and high-level manufacturing within the United States. Future high-paying and intellectually challenging jobs depend on this environment. Tax and investment policies which provide these incentives must be part of any public "technology policy".

#### LOWER GOVERNMENT-GENERATED RISK ASSOCIATED WITH INNOVATION

Public policy must address regulatory and litigation issues so that public interests are balanced against innovation incentives. The lost value of innovations *not done* because of regulatory and legal disincentives must be considered in the overall context of the optimization of public protection vs. private industry activities.

#### PROTECT INTELLECTUAL PROPERTY

In the market place, intellectual property is a major part of the competitive edge which justifies R&D expenditures. Without world-wide protection of that intellectual property, companies cannot capture the full value of their R&D investment through global sales with appropriate margins. As products and services become more knowledge-based and software intensive, the need for new paradigms in the protection of intellectual property will become more urgent. Clearly, public policy must focus on international trade relations as well as on domestic legislation if our companies can continue to reap the benefits of extensive R&D investments.

#### SUPPORT INDUSTRY COOPERATION ON R&D

As product life cycles continue to decrease and private industry spends less on enabling and emerging pre-competitive technologies, the need for better bridges between university and government research and the industrial sector become more urgent. Joint ventures and government-private partnerships provide rapid technology transfer and continue to technological infrastructure that has served us so well in the past. These activities must not be lost by ideological attacks on so-called "corporate welfare" and arguments about the government's role in industrial innovation. Programs which have been developed over the past five or six years such as the Advanced Technology Program in the Department of Commerce and the CRADA programs in the Department of Energy must be strengthened and continued. Overall a 5-10% portion of the federal R&D budget should be reserved for these partnership programs. They should encourage both government and academic interaction with industrial R&D and foster the kind of relationships where emerging technologies can develop and spin off new industries in a competitive time frame and new enabling technologies can be rapidly assimilated by the industry.

The response to these recommendations by today's policy makers and legislators will determine the quality of our country's fu-

ture. The investments called for must be made in an era of great need to reduce the overall federal deficit and where the need for investments in education and continued support for the needy and the elderly must be found. Thus it is a time when a thoughtful review of government R&D activities is in order to prioritize the expenditures to meet the recommendations of today's report. Current budget resolutions in the House and Senate project a decrease of at least one-third of all federal government R&D expenditures by the year 2002 and a prohibition on all R&D partnership activities where the federal government funds any part of an industrial firm's civilian technology development. The appropriation process which is now underway for 1996 budgets would indicate that the plan is on track. Some \$5-6 billion of the \$34 billion or so of civilian R&D have been identified for reduction and most of the newer partnership programs have been severely reduced or eliminated. The Advanced Technology Program has been eliminated, the Technology Reinvestment Program in the Defense Department has almost been eliminated and the DOE CRADA budget has been reduced to a few million dollars. The report before us outlines why the industry will not and can not replace these activities. The discontinuity which will be caused by these budget actions, the consequent loss of thousands of R&D jobs, and the effect it will have on academic research departments will not be amenable to "quick fixes" next year or in the foreseeable future. We can only hope that this report and other current analyses will convince the public and the Congress that this approach is suicidal. A balanced budget will only be achieved by *both* government reductions and strategic investments in labor, capital and technology which will provide the economic growth and jobs of the future. This report goes a long way to explaining in clear terms why that is true.

Thank you.

#### "THE FUTURE OF AMERICA'S RESEARCH-INTENSIVE INDUSTRIES"

(By Richard J. Kogan, President and Chief Operating Officer, Schering-Plough Corp.)

Members of the Administration and Congress, distinguished scientists and professors, ladies and gentlemen:

Good morning. As the Institute's researchers have noted, pharmaceuticals and biotechnology are one of this nation's "top eight" R&D-based industries examined for their ability to continue their innovation track record.

Certainly, major challenges lie ahead for our industry. With biopharmaceutical industry R&D costs rising, it's increasingly difficult to repeat our previous innovation achievements that have made America the worldwide technological leader in medicine. Just as we cannot return to yesterday's markets, we cannot replicate our former R&D expenditures. Growth in industry R&D spending today is less than half the level of the early 1980s.

Schering-Plough in the 15-year period 1979-1994 spent almost \$500 million to develop our recombinant alpha interferon, plunging ahead even when it initially appeared the drug would help only a handful of cancer patients. It took nearly 14 years of work before we saw a penny of return on that investment. Today, such an effort might not be made—nor our subsequent discovery that the drug can treat 16 cancer and viral diseases.

For pharmaceutical and biotech firms, the burning issue now is not only whether we can continue bringing products to patients that treat unconquered diseases, but whether we can continue covering the expenditure for leading-edge research. Our industry is currently responsible for more than 90 percent of all new U.S. drug discoveries.

Today's diseases—Alzheimer's, AIDS, heart and kidney disease, prostate cancer and arthritis—are far more complex than those successfully treated in the past. Moreover, many of today's most prevalent diseases—primarily chronic and degenerative conditions—are at the high-cost stage in the innovation cycle. If we cut investment in medical progress today, the consequence may be irrevocable and society may rue that decision for years to come.

The annual medical costs of only seven major uncured diseases account for about half of today's health care bill. However, many of those diseases are within reach of effective pharmaceutical control or cure. As biomedical technology progresses to that point, the total cost of treating these major ailments should drop sharply. If the cycle of innovation is disrupted, we run the risk of being trapped with today's higher-cost, less-effective options.

Today's rapidly changing health care market signals the continuing sense of urgency for optimal patient care and cost containment. By the same token, we must constantly remind ourselves that medical innovation is the most viable, long-term solution for cost-effective quality care—as the findings of the Institute study attest.

In 1995, an urgent task before U.S. policymakers should be to assure that the path of innovation remains open, unobstructed and attractive to investors. And, that statement applies across the board—from our industry that has cured polio, tuberculosis, measles and diphtheria to our fellow industries that have brought the world the laser, fiber optics, lightweight alloys, integrated circuits, the CAT scanner, and that have taken us into outer space.

Thank you.●

#### BOB SELTZER

● Mr. LEVIN. Mr. President, I want to take a few minutes of the Senate's time this evening to salute the career of one of the best among us. Tomorrow, Bob Seltzer is turning off his Senate computer terminal for the last time, analyzing his last floor debate, perhaps writing his last perceptive piece of policy analysis. After spending much of the last 17 years serving three different Senators, Bob is leaving Capitol Hill for less hectic pursuits. Along with the many people who have had the privilege of working with him, I will miss him very much.

Bob was teaching college in Detroit when I was lucky enough to get him to manage my first campaign for the U.S. Senate in 1978. Despite the odds against a city councilman like me winning his first statewide race, Bob maneuvered me into winning and followed me to Washington as the chief of my staff. We both dove into the challenges and opportunities of this institution, and he was at my side throughout my first 4 years. He set up my office, hired my staff, shaped my legislative program, wrote some speeches for me and endorsed me in many aspects of my job. Even after moving on to other challenges, Bob came back when I needed him for another stint on my staff as my communications director.

We learned the ways of Washington together, and we both developed a deep love for the Senate. He was as fas-

cinated as I with its traditions and procedures, and he became one of a handful of students of the Senate who have a deep understanding of how and why things happen here the way they do. His unique, wry and creative sense of humor helped me and all those he worked with survive the many strains of Senate life. He enjoyed poking fun at himself. I relied on his political instincts and insights, and on his ability to tell me things straight. His grasp of the fundamental principles of what makes our complex society function and his incredible ability to analyze and explain a problem and argue for a solution to it were invaluable assets to this Senator.

That ability to paint word pictures of people and problems and their solutions which Bob has is truly remarkable. He can write about virtually any subject and bring it to vivid life, creating memorable images that stay with the listener or the reader. I remember, for example, the way he once described his suspicions about someone's guilt: "There may not be a smoking gun, but there's a trail of spent shells leading to his door." Even his internal office memos describing the most mundane administrative matters, which he claimed to be terrible at dealing with, contained priceless paragraphs of prose and self-deprecating humor.

I would be less than truthful if I did not point out, however, that Bob did have a weakness in his writing style, a tendency toward excessive alliteration. Perhaps this grows out of his interest in literature, which he is going to pursue in the years ahead by opening a bookstore. One of his close friends and former coworkers, Chuck Cutolo, who also recently moved on from the Senate, called to say that if Bob were writing his own headline for the story of this departure, it would probably read something like "Seltzer Severs Senatorial Services; Banks on Books to Bring Him a Breathe."

But this one weakness did not stop Bob from getting two other Senators to make him a key advisor after he left my staff. Senator HERB KOHL made Bob his legislative director, and he most recently has served Senator FRANK LAUTENBERG in that same capacity. They probably don't know it, but Bob continued to help me, in his spare time. He continued to be a political strategist and advisor, and I hope he continues to give me the benefit of his extraordinary skills and his trenchant wisdom.

When we came here together he was a young man. He's now old enough to be beloved. And that he is.●

#### NOMINATION OF JOHN J. CALLAHAN

● Mr. PRYOR. Mr. President, on July 21, 1995, the Senate Committee on Finance favorably reported the nomination of John J. Callahan for the position of Assistant Secretary for Management and Budget and Chief Finan-

cial Officer (ASMB/CFO) for the Department of Health and Human Services. I support Dr. Callahan's nomination and feel his expertise would be advantageous to this Department. The importance of this Department and its role in our society is immeasurable. For this reason it is crucial that this Department, like every other, be served by outstanding people such as Dr. Callahan.

For more than 25 years, John J. Callahan has had an exemplary public service record. He served in the United States Senate for over 15 years. During that period he served as Staff Director for the U.S. Senate Governmental Affairs Subcommittee on Intergovernmental Relations and the Subcommittee on Government Efficiency, Federalism, and the District of Columbia. His service also includes serving as Deputy Staff Director of the Senate Budget Committee and Chief of Staff to my good friend from Tennessee, former Senator Jim Sasser. Dr. Callahan's vast Congressional and budget experience should help him tremendously as he wrestles with the issues that HHS deals with every day.

Earlier in Dr. Callahan's public service career he was a Director at the National Conference of State Legislatures (NCSL). During that time he had the opportunity to conduct studies that helped State legislatures review their school finance plans to meet with educational mandates. Working for the State governments has given him the background needed to better link state and national government agencies, and to better interpret the effect of Federal requirements on state and local governments.

As Chief Financial Officer, Dr. Callahan will have the responsibility of handling the more than \$300 billion budget that is allocated annually to HHS programs. He is ably credentialed for this task. Dr. Callahan's work at the Senate Budget Committee included assisting in the preparation of more than 20 Committee hearings and in the development and passage of two budget reconciliation bills (which together reduced projected deficits by nearly \$1 trillion).

HHS is considered by many to be one of the most crucial entities of our government. This Department affects all Americans at some point or another in their lives. From childhood immunization programs to the supervision of Medicare, we will all eventually benefit from the services of this agency. The Assistant Secretary of Management and Budget has many responsibilities that help to make this a productive Department. John Callahan has the expertise and track record to run this office efficiently and purposefully. In a recent meeting with Dr. Callahan, we discussed his role in designing more efficient programs. John Callahan brings with him to this important post not only new and innovative ideas but invaluable experience that has taken him many years to acquire.