

The Hand on Your Purse Strings

Senator Barbara Mikulski is in a key position to influence spending on civilian R&D. She intends to use it to change the culture of science agencies—and to defend science against attacks by budget “hawks”



If your research is funded by the U.S. government, Barbara Mikulski is likely to have at least a finger on your purse strings. The Senate appropriations subcommittee she chairs handles the budgets of the National Science Foundation (NSF), the National Aeronautics and Space Administration (NASA), and the research funding for the Environmental Protection Agency (EPA). And as the Democratic junior Senator from Maryland, Mikulski looks out for the interests of three of her state's major employers of scientists: the National Institutes of Health (NIH), the Food and Drug Administration (FDA), and the National Institute of Standards and Technology (NIST). In the 7 years she has served in the Senate, Mikulski has parlayed those attributes into a position with more influence over nonmilitary R&D than perhaps anybody else now on Capitol Hill.

But the scientific community has long been uneasy about Mikulski's growing power over science funding. Last fall, she shook up policy circles by telling NSF that, unless it devotes 60% of its budget to “strategic research,” she might shift some of its funds to other agencies. (NSF officials say the current figure is 55%, but there is much disagreement about the meaning of the phrase.) She recently angered some in the biomedical establishment by spearheading efforts to force NIH to pay more attention to women's health issues—even spelling out legislative requirements for the inclusion of women and minorities in clinical trials. And she has long been a key supporter of the space station—a multibillion-dollar venture that many researchers believe is siphoning money from science.

A recent major address at the National Academy of Sciences reassured many researchers, however. (See page 221 for the text of her remarks.) And on 23 March, she sat down with editors of *Science* for a 75-minute interview filled with examples of what she sees as strengths and weaknesses in the federal scientific enterprise—and how she hopes to change it. Barely touching the club sandwiches and mineral water laid out on the table of her well-appointed office in

the Senate Hart Building overlooking the Capitol, Mikulski spoke, in her trademark forthright style, of her frustrations at the slow pace of change in the science agencies and the White House. What follows is a transcript of her remarks, edited for brevity.

On the pace of change at NSF

Mikulski: Today [23 March], in excellent testimony, [NSF Director] Dr. [Neal] Lane articulated the issues facing NSF. He used the term “organizing around strategic themes” and I asked him then very directly: Do you think the National Science Foundation should be organized like the National Institutes of Health? The answer I got was, “Well, we have a planning committee and then we are going to meet and write a report.”

That was not my question. I didn't ask

that we think you, [Rep.] George Brown [chairman of the House science committee], the President, and the Vice President would like us to meet.”

I'm wedded to an outcome. I'm not wedded to organizational structures, with little boxes and little charts and so on. I gave the NIH model as a way to be provocative and to give everyone a model that we all understood so we don't spend months and years on definitions.

On changing the culture of science

Mikulski: Here's the culture I'm trying to change: The idea that the university is an incubator for Ph.D.s to do research, who then stay at universities to generate more Ph.D.s to do more research. This in no way is to minimize the great universities, many of which are in this region. But getting government grants is not a form of intellectual entitlement. And when you do, you are getting the public's money so in your mind there should be a public linkage, you see. And what we want those who give the money out to say is, “Where are we heading?” It's the same question they ask at ARPA [the Defense Department's Advanced Research Projects Agency], and at NIH.... The National Science Foundation was meant to fund a wide range of things, from the most practical to the most speculative. It was created during

the Cold War. And science was strategically driven. It wasn't just, “Wow! We are a rich country, and we have money to spend.”

Every national leader that has ever funded money for exploration looked for an outcome, including kings and queens, so I don't see what the big deal is. But it is not a form of entitlement where you think when you get out of school you are entitled to submit a grant and automatically get money to do it.

On science and the budget squeeze

Mikulski: I believe that the new war for America's future is really economic and that we need to be able to produce those products, knowing at the same time that it's important to protect the triad of government, university, and industrial research. But like I said at the Academy, now you have a new type of



Sen. Barbara Mikulski (D-MD)

Born in Baltimore, 1936; Received master's degree in social work, 1965; Community organizer, elected to Baltimore City Council, 1971.

Member of Congress since 1977; 5 terms in House, elected to Senate in 1986.

Chair, Appropriations subcommittee for Veterans Affairs, Housing and Urban Development, and Independent Agencies; \$88-billion budget includes NSF, NASA, and EPA; Member, Appropriations subcommittee for Labor/Health and Human Services; \$260-billion budget includes NIH.

about his process. I asked about his ideas. I said I advocate this as something to be considered, recognizing that we want you to have flexibility, nimbleness, and agility to tackle new fields and frontiers. And what I got was, “Well, we'll have a report by May and we'll be meeting with the [National] Science Board this summer.”

Well, we are going to be done with this reauthorization [of NSF] by around the Fourth of July. So I told him, “Speed it up.” And that was not said in a schoolmarmish, dictatorial way, but it's like they exist in a world different than what our world is. I don't want to be writing the prescription for a National Science Foundation, but what I'm looking for is for them to say, “Yeah, we like that, and this is what we ought to do.” Or, “No, we don't like it, but here's the goals

PHOTOS BY RICK KOZAK

"If we get into a fight, I'm not a pacifist."

Like any successful politician, Sen. Barbara Mikulski (D-MD) fights for what is important to her constituents. One issue that has really made her competitive juices flow is the need to renovate the aging in-house laboratories at the Food and Drug Administration (FDA), a federal agency that employs thousands of people in her state. During her interview with the editors of *Science*, Mikulski offered this insider's view of what it takes to get something done in Washington. (Last month, the FDA announced the two centers will be built in suburban Maryland.)

Mikulski: Well, first of all, I see my role in science, in particular its relationship to the federal labs, as broader than my chairmanship of the [veterans affairs, housing, and independent agencies] subcommittee.... For example, I've been aggressively involved in the modernization of FDA.... FDA operates 37 outmoded, some say even dangerous, facilities scattered throughout Maryland and the District of Columbia. I was an advocate of campus consolidation and modernization, because I believe that if we are going to move products to the marketplace, be they pharmaceutical or biomedical, FDA has to be fit for duty in terms of its facilities.

Well, facility modernization had been effectively stonewalled by two administrations [Presidents Reagan and Bush], and I had to go white-knuckle with both [the former director of the Office of Management and Budget (OMB), Richard Darman and [the current OMB director, Leon] Panetta.... And this was after meetings with [FDA Commissioner] Dr. [David] Kessler and well-documented site visits to the facilities myself. Then I had to make sure other states didn't raid this and try to take FDA, because there were senators from the south who were going to try to move

this jewel in our crown of federal labs. So as an appropriator, I just said, "If you come in and take FDA, know that I will come in and take something from you." It was as simple as that. If we get into a fight, I'm not a pacifist. I believe in nonviolent approaches, but my approach has been that of a community organizer. So we fended that off....

We also had to resolve issues [of where to locate it] within the state. We said it needed to stay in the [Baltimore-Washington] corridor where it was.... Then it did not move very well, so we [in the Maryland delegation] linked arms in a bipartisan way and began to convene summit meetings with [General Services Administration] and OMB and FDA, and these were like treaty negotiations. What they kept recommending was not feasible because, well, essentially they would have spent the money and there would have been no building block for other facility expansion later on.

Now, we knew we couldn't do it all in one shot. [The idea was] that each additional facility over the years would immediately be integrated with and complement whatever else we are doing. So we finally got the money through the appropriations.... And then we were stonewalled by OMB. Finally, at our last meeting with Leon Panetta, I said, "I'm ready to go to Def-Con 4 [military term denoting a heightened readiness of forces] on this. I've waited patiently and I will be at your hearing." In other words, I will no longer make it an FDA issue, I will make it an OMB issue. Now, remember, I'm on Treasury and Post Office [appropriations subcommittee] that funds GSA and OMB, and I leveraged my positions, you see, and now at least we are now well on our way. That has taken 3 years of persistent effort.

hawk [in Congress]. Not a national security hawk, but a budget hawk, and big science has become a target. We saw that particularly in the House, with the vote on the Superconducting Super Collider. What we want to be able to articulate is where we are going with this [research], and it might not meet a compelling need as specific as gene therapy, you know, to cure colon cancer or so on, but it must meet a national objective so that, number one, we have public support and, number two, we have the support from members of Congress.

Otherwise, what happens when the hawks cut a dove program is that the doves then say, "Well, we either go to defense or we go to science and technology [for the money we need]." And we think that that's a very dangerous direction to go in. Just like we do not, in the New World Order, want to hollow out our military, we certainly don't want to hollow out our science and our technology. And the tough part is that there's less discretionary money to spend. What we [her appropriations subcommittee] get this year will be probably one of the skimpiest allocations I've received in the last 5 years.

On the glacial pace of change

Mikulski: I believe that the President and the Vice President are really very much committed to science funding and technology devel-

opment, and also to strategic research. I've had endless talks with the Vice President about this, and we are all on the same wavelength.... But I believe that OSTP [the Office of Science and Technology Policy] in its first year was overwhelmed with so many things that it had to do, ranging from the space station funding to the "green" car initiative to the overall objectives of what Bill Clinton and Al Gore wanted to do....

But I must say that I'm disappointed in the glacial-like way the NSTC [the National Science and Technology Council, a top-level committee established in November by President Clinton] is operating. Senator [Jeff] Bingaman [D-NM] and I had wanted the President's science adviser, and through him the Council, to function as the equivalent of the National Security Council (NSC). You know, in our recent wars we had smart weapons; now it's time for smart technologies for peaceful work. But I

don't believe it's functioned that way. There is no [equivalent to national security adviser] Tony Lake and none of the mechanisms to move it that way. We understand that these committees have been formed. But nobody quite knows what they do, and there's a lack of clear direction. So I think that this is a good intention that has not really been operationalized. [The NSTC has not yet had its first meeting.] I mean, the NSC meets weekly, and [Ambassador to the United Nations] Madeleine Albright flies down from the UN to attend. She wouldn't miss it. The chieftains meet, and there is also a support staff to carry out their decisions.... That's what we'd like to see in science and technology—regular meetings among the chieftains in the field, where they say, for example, "Okay, what about indirect costs?"

[With regard to indirect costs, OMB Director Leon] Panetta says we need a 1-year pause. What the hell is a pause? And what does this mean to the universities? What does it mean to agreements that have been made? What is our policy [toward reimbursing universities for federally funded research] if we have to take a pause



this year? Is this going to be the pause that refreshes? That's what the Council should be talking about, along with modernization of federal laboratories and the whole issue of academic facilities. What are our national policies going to be on these issues?... And I will be talking to the Vice President about this.

On her sources of scientific advice

Mikulski: Who I consult with depends on what we are working on. For example, with the Office on Women's Health, [Rep. Pat Schroeder (D-CO)] and I listened to women who were investigators, both at NIH and extramural scientists, who raised these issues, along with really fine men who also were concerned. Then we went out and had informal conversations with people in the academic research community. On this whole issue of strategic research and how it's implemented, of course I talked with the University of Maryland, but Dr. [William] Richardson [president of Johns Hopkins University] and I went up and spent the day at MIT with Dr. [President Charles] Vest, and we had a roundtable lunch with people who really had a chance to voice their opinions.

On her relations with Clinton appointees

Mikulski: I feel very comfortable talking to [NIH Director] Dr. [Harold] Varmus or Dr. Lane and [Undersecretary of Commerce] Dr. [Mary] Good, and I could go on.... We have both a public and a private dialogue going on. The public dialogue is the hearings, and that is what is cleared by [the White House Office of Management and Budget (OMB)]. Then I will visit the agencies, or have them come by. Dr. Lane came to Baltimore to talk to me, and I've had a tour of NIH and lunch with Varmus, and we talked about everything from getting along and inviting him to come see that Meyerhoff program at the University of Maryland Baltimore Campus, because I know of his passion for getting more young people into science.

But you have to build the relationships. It's not just a Q and A. Otherwise, we could do it by e-mail. It's the same for the Council. They need an ongoing, scheduled opportunity to build those relationships. I feel I have both a "411" and a "911" relationship with them. But that's been built up over time.

On helping young scientists find jobs

Mikulski: It's a very serious issue, and nobody on campus is giving them advice, no one is telling them about opportunities that do exist, and no one is saying that maybe they need a dual degree, like math and business, or whatever.... The men and women coming into science, many of whom are first-generation college graduates, are really scared. The word on the street is, "Don't major in these fields." And unless we really begin to talk

about where they are going to work and give them specific guidance, there is going to be a major pullback, particularly in the more basic fields....

Everything is a little too slow, a little too, "Well, we'll get to that." There's an Internet that goes to 1200 colleges. They could be putting out summer jobs on that. Those young people could be plugging right into their electronic bulletin boards, reading about summer job opportunities and internship possibilities. I think the opportunities are there, but I don't think we are using our technology to communicate to young people.... I would really hope that department heads would talk to their own students. Go have coffee with them and just say, "Where are you?" They want their students to be a clone of themselves, and I understand that. There's that bright young kid and we want him to follow in our footsteps. But where is that going? What does that mean? And will the money really be there?

On pork projects

Mikulski: I think the work "pork" is often misused. I don't think you can equate the Christopher Columbus Center for Marine Biology [a \$130-million project under construction in downtown Baltimore] with the Lawrence Welk Museum. Columbus was an agreed-upon science project [although never approved by Congress], and the delays of moving it through the authorizing process were such that we had to resolve issues around the purchase of land and so on, so, yes, I leapfrogged ahead.... Authorizations sometimes stall out, and then you can't do the project. But to the extent that there is no large facilities modernization program in place, then there's always going to be pressure from universities to get infrastructure money for bricks and mortar.

On how Congress judges big science

Mikulski: Why did the human genome project survive and not the supercollider? Because people knew that genome would lead to something practical. And supercollider was too speculative, even though you and I know it would lead to practical things over the next decade or over the next three or four decades.... And then there's the whole issue of gene therapy and the early detection of breast cancer, and all

of those other things. People get that. They might not understand DNA, but they have an idea about DNA. And I think that's why they support it. Which brings us back to strategic research. What is more basic than mapping our genes? And yet it has support in Congress, and I believe it will continue to have support....

But I would caution against something I call the "win-the-war" mentality, which is when we get into almost a bidding war among ourselves about who can dump more money into a particular area, whether a war on cancer, breast cancer, or AIDS. But there's only so much money you can absorb.... If we could find a cure for AIDS and a cure for Alzheimer's and a cure for Parkinson's, just look at the impact on long-term care budgets. But sometimes Congress gets into reacting to "60 Minutes," you know, the TV show, and whatever's the disease of the week, we want to run and fund it and set up an institute. I don't think that's the way to go, either. I think research needs to be moving along at a steady pace. And if I could double NIH's budget, you bet I would.



RICK KOZAK

On prospects for the space station

Mikulski: My concern is that if the space station goes, or manned flight goes, that [NASA] will become essentially a national institute on space science, and I think that's too modest for the United States of America. We also have international commitments that we need to honor with our partners. I'm not going to be the Senator that's going to blow taps or sound the retreat on this. I believe that we need manned space flight in support now of space science. At another time, and perhaps another fiscal era, we can use manned flight for greater exploration. But right now I believe the real frontiers of exploration will be done through the robotic and other unmanned activity....

[The fact that the Department of Housing and Urban Development (HUD)] had a \$4-billion cut [in the President's budget request] is probably one of the most serious factors in putting the station at risk. Because it's in the same appropriations bill. Members are going to say, "We should be restoring the \$4-billion cut in HUD, not adding \$2 billion for a space station. I mean, [space] is a nice thing to do, but this is a must-do—affordable housing and housing for the elderly." Those are the choices, and I think it's going to be very tough.