by Laura Forlano
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This month, Mayor Giuliani announced four winners of the annual Mayor's Awards for Excellence in Science and Technology and an additional four Young Investigator awards. The awards recognize the contributions of the scientists and engineers in improving our lives, opening up new areas of knowledge and fostering economic development particularly in New York's key areas of biomedical and high tech research.

In our daily lives, we rarely stop to think about the complexity of science and technology policy decisions that affect everything we do. From the genetically modified vegetables that we pick up at our local Korean corner grocery to the air we breathe to what we do with our garbage, New Yorkers confront science and technology decisions everyday. But, getting involved in shaping the future of science and technology, and insuring that it is being used to benefit our social goals, is more difficult.

This month I spoke with several policy experts to find out what individuals can do to make a difference in this area. I found out that participating in science and technology can be as easy as going birdwatching, joining your community board or helping to clean up New York City parks.

As Michael Crow, executive vice provost and professor of science policy at Columbia University, wrote in The Chronicle of Higher Education , "What we must begin to do-and what our current science policy fails to even consider-is to search for and follow the most socially beneficial paths." Developing policy that will benefit society requires the education, input and participation of the public involved.

One of the key organizations involved in setting science and technology policy is the New York Academy of Sciences
. Current and forthcoming projects include examining the link between technology and economic development in the tri-state region, researching the effects of pollution in the New York/New Jersey Harbor and determining how digital technologies can be integrated into all aspects of society, including the education system.

David Guston, a professor of public policy at Rutgers, The State University of New Jersey, believes that public participation can come in many forms. "I'm a birdwatcher," he told me, "and every once in a while I go on the Christmas bird counts with the Audobon Society ...There are

ways of incorporating things that lay people can do and there should be a greater emphasis on that." This example shows how the public can participate in the scientific process and work towards an environmental goal such as the preservation of birds.

By following our scientific interests and hobbies out into the world, we can participate in scientific processes that have formed the basis of American society. By further learning about and analyzing the scientific underpinnings of social policy like health or the environment, we can become more informed critics of political decisions about science and technology.

Guston says, "I encourage people to try to understand a social policy and an outcome that they are interested in and try to understand the role that research and development, and science and technology, have in achieving the broad social goals."

For example, if you are wondering if the vegetables that you buy at your local Korean corner grocery are genetically modified (GMOs), and they probably are, do some research to find out the current policies of the Department of Agriculture , the key industrial players in the manufacture of GMOs namely Monsanto and the role of universities (like Columbia and Cornell) in basic agriculture research. GMOs achieve a wide variety of social goals such as decreasing the price of fruits and vegetables, protecting crops from insects and disease, and altering the shape and color of food so that it is less likely to get crushed in shipment and looks more appealing at the market. However, there may be health risks to GMOs that we still don't know about and therefore many people may prefer to buy organic vegetables.

This example can be extended to a wide variety of issues that have an impact on our everyday lives in New York. In New York, the biomedical, biotechnology and new media industries are extremely important to the city's economic development. In fact, the mayor even has a Task Force on Biomedical Research and Development. Thus, fostering strong relationships between universities, private firms, hospitals and government are a key to the city's success. Recently, human cloning has surfaced as a major ethical issue in the United States and it is possible that New York City could be a key player in this area depending on the science and technology decisions that are made in the near future. In Italy, one doctor has already begun the cloning of a human.

These issues that affect all of our lives underscore the importance of public involvement. Guston cites "citizen panels," forums organized to get input from a wide cross-section of society, as examples of public participation in science and technology. These panels have

demonstrated that average citizens can learn about technologically complex issues. Increased public participation will allow us to broaden the dialogue about science and technology policy and build a society that reflects the input of the citizens and not only that of scientists, engineers and politicians.

This attitude about the involvement of citizens in the development of science and technology and their applications is a fairly new one and it is still developing. In the past, the relationship between science and society was one of "scientists discover and society benefits" without much discussion of what society wanted. Director of the Office of Scientific Research and Development Vannevar Bush's 1945 report to President Truman, "Science: The Endless Frontier," proposed a model of government funding for the sciences controlled only by scientists themselves.

In the last twenty years, this model, called the "social contract" has diminished in favor of more collaborative processes, perhaps as a result of the end of the Cold War. "In all sorts of segments of American society, there is a greater emphasis on working together across different kinds of boundaries. People no longer view these boundaries as impermeable, therefore science and politics should have more intimate connections," said Guston.

Unfortunately, the scientific and policy community has often excluded citizens on that basis that they are scientifically illiterate. "The rationale is usually that because [the public] doesn't know anything, they can't participate and this is not a productive dynamic," according to Guston. Thus, knowledge dissemination to the public through education and the media should be a priority in the future if we aim to produce citizens that are able to participate in science and technology decisions.

This year, science journalist John Noble Wilford, a Pulitzer Prize winner and founder of the New York Times Science Times section, won a Mayor's Award for his role in increasing public understanding of science and technology.

In New York, this new relationship between science, technology and society should be fostered among government, the private sector, universities and citizens. According to Crow, "...science policy must broaden its view," referring to the new industries, skills, institutions, social implications, and partnerships that should be incorporated into science and technology policy.

Thus, it is possible for the public to go from birdwatchers to Bushwatchers without becoming scientists, engineers or spending seven years in graduate school. Citizens with an interest in how science and technology shapes social outcomes now have more opportunities to make important contributions. So, get out your binoculars and raise your voice. You can shape the future of how science and technology impacts all of our lives.

Watch My Interview with Professor David Guston (requires video technology!)

**In Other News:**

Faced with a shortage of employees with high tech skills in New York, the City's Private Industry Council (PIC) is teaming up with the City University of New York and the New York Software Industry Association to train several hundred people in HTML, Dreamweaver and database administration over the next two years and place them in jobs at all levels. The partnership is offering a free 15-week course to those seeking to improve their tech skills. Please contact Shelton Jones at 212-742-1000 X 270 or sheltonssjones@aol.com if you are interested.

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