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Puerto Rico's future at stake [1]

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En este editorial, el Dr. Jorge Colón, profesor del Departamento de Química de la Universidad de Puerto Rico en Río Piedras, argumenta que de cara a la crisis económica, aunque parezca un lujo, Puerto Rico debe apostar a invertir en la ciencia, tecnología y educación. Puedes leer la versión completa del mismo en inglés.

This week, Puerto Rico hosts scientists and other stakeholders in Caribbean science to discuss “Attaining Sustainability Through Science and Education.”* [3] This comes at the end of a summer that saw the island's economy “death spiral” into a first-ever default on a bond payment. Its more than $70 billion in debt, high unemployment, and a shrinking economy are causing Puerto Ricans to leave the island in droves in search of stability. This includes young scientists and biomedical professionals. Austerity measures being considered by the Puerto Rican government include reducing support for higher education, but this would only drive the brain drain, decimate the scientific enterprise, and reduce the capacity to confront the economic and environmental challenges: a perfect storm that would be devastating to Puerto Rico's future. Robust science and technology are needed now more than ever to avoid this catastrophe.

The economic crisis is partly the consequence of a history of neglected investment in science-based planning for sustainable development. Puerto Rico is still strongly dependent on fossil fuels, consuming more total barrels of petroleum per day than any of the seven Central American countries, while having a smaller population than six of them. Transitions from oil to natural gas and particularly to renewable energy resources have been slow. Decades of watershed mismanagement and an inefficient water distribution system have made coping with severe drought difficult. And even though the risks are evident, the island has not responded to the threats of climate change. The Puerto Rico Climate Change Council has projected up to 1.70m of sea-level rise by 2110, exceeding the upper limit of the global mean indicated by the Intergovernmental Panel on Climate Change. Yet most of the population, critical infrastructure, and economic activity are still concentrated in coastal plains within 1 km of the coast.

About 10 years ago, Puerto Rico recognized that the economy of the 21st century is strongly based on science, and the government formed the Puerto Rico Science, Technology and Research Trust (and Fund), supported by public and private sectors. Its goal has been to support research, development, and infrastructure projects. The trust recently awarded several $150,000 research grants to develop new products in biotechnology and life sciences, aerospace, medical devices, and information technology. The trust also completed a strategic plan to promote entrepreneurship and innovation through infrastructure- and capacity-building.

Puerto Rico also has made recent strides to build environments that not only retain science professionals but are fertile for international collaborations. The Turabo University's Technology Accelerator, the Bioprocess Development and Training Complex, the University of Puerto Rico Comprehensive Cancer Center, and the future Science City are all geared toward this end. The University of Puerto Rico's Molecular Sciences Research Center opened in 2011, supporting basic and translational biomedical research through interactions between academia and the biopharmaceutical industry and equipped to license and commercialize its intellectual property. The University of Puerto Rico's new joint science and biomedicine training and development programs for graduate students and faculty are in partnership with institutions including Stanford and Yale Universities. The island's scientific diaspora is involved in all of these efforts, particularly through Ciencia Puerto Rico, a network with over 7000 members interested in science and Puerto Rico.

In June, *Puerto Rico—A Way Forward*, a report by former International Monetary Fund economists (commissioned by the government), indicated that drastic cuts in public spending are needed, including education. Although restructuring the debt and eliminating the wasteful use of government resources are certainly necessary, slashing education is not a viable solution for an economy whose recovery relies on scientific innovation activities. Science investment in a time of economic turmoil might seem like a luxury. However, it is a gateway toward economic and social development.

- ? [4]* Annual Conference of the Caribbean Division of the American Association for the Advancement of Science (AAAS) (http://aaascd.rcm.upr.edu/ [5]). AAAS is the publisher of Science.

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