

Crisis in Brazil

Earlier this month, Brazil's National Museum—the oldest, largest, and arguably the most important historical and scientific museum in Latin America—was consumed by fire, stoked by a neglected and degraded infrastructure. It has been a tragic reminder to Brazil and to the rest of the world of how important it is for societies to support the institutions and endeavors that preserve and promote science and culture. This devastating event should serve as a harsh wake-up call for Brazil to bolster, rather than neglect, its scientific enterprise. The general elections next month are an opportunity for Brazil to prioritize science.

The financial crisis in Brazil has been the rationale for a steady decrease in support for science. For example, this year, the Brazilian astronomy community watched Brazil become further disengaged from major international telescope resources and projects. Specifically, Brazil's opportunity to join the European Southern Observatory (ESO) was suspended in March by the Observatory's multinational consortium, thereby halting Brazil's access to the world's largest and most complete observatory located in South America. In 2010, the ESO Council had approved a plan in which Brazil pledged to pay €270 million over 10 years for full member status. Although the plan was approved by the Brazilian Congress in 2015, the government failed to ratify the agreement in the interim. Not surprisingly, Brazilian astronomers have been frustrated by the lack of commitment by Brazil to science and technology, especially given that a strong community of Brazilian astronomers has been fortified over the past 50 years through training programs at home and abroad. Now, this community is seeing its work, and Brazil's investment, strangled.

As of now, Brazil is still involved in developing cutting-edge instruments for telescopes in Chile, including the Extremely Large Telescope, an observatory that will vastly advance astrophysical knowledge of the

universe. But Brazil needs to be part of the ESO, the preeminent intergovernmental science and technology organization that plays a leading role in astronomical research cooperation. Without access to the best instruments, the new generations of astronomers in Brazil will not thrive.

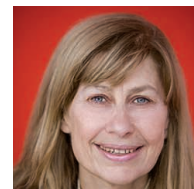
Brazil's elections next month, including for the presidency, are a chance to reestablish commitment to science and rescue the country from further economic decline. The current budget of the Ministry of Science, Technology, Innovation, and Communication (MCTIC) is only 40% of that in 2010 (corrected for inflation),

even after it merged with the Ministry of Communication in 2016. At the same time, the currency has devalued by half. This year, a letter protesting budget cuts in science was signed by 56 Brazilian scientific societies and sent by the Brazilian Academy of Sciences and Brazilian Society for the Advancement of Science to Brazil's president, Michel Temer. The problem is that research and its supporting infrastructure are largely dependent on government support. Funds for research projects necessarily come from the MCTIC and state agencies such as the São Paulo Research Foundation (FAPESP). There is also a problematic misperception in Brazil that science and

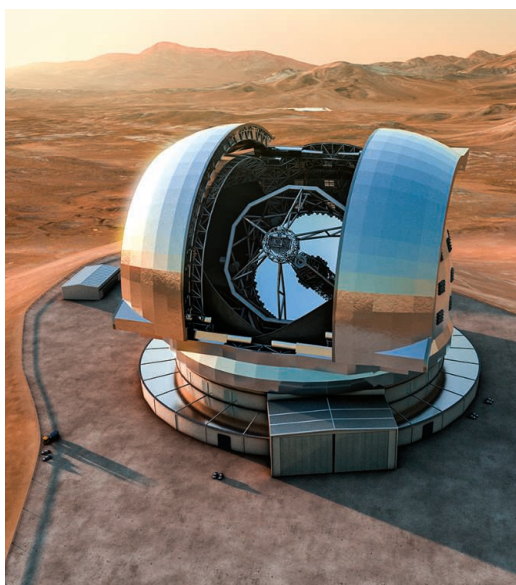
technology have little impact on the economy. By comparison, the League of Research Universities in Europe estimated that in 2016, the output of research-intensive universities bolstered the European economy by generating approximately €100 billion in gross value as well as 1.3 million jobs.

The strongest societies reach their competitive strengths by supporting the scientific enterprise. Even if the transfer-of-knowledge mechanisms are still maturing, their exercise is needed now so that economic prosperity is attainable later on, lest the country be condemned to lag behind other nations.

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The Extremely Large Telescope (part of the ESO) is under construction in Chile.

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