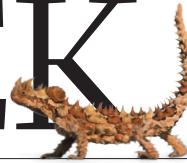


THIS WEEK



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Environmental rights

Brazil is suffering from both an economic and a political crisis, but eliminating basic environmental protections is no solution.

Brazil has had its ups and downs when it comes to protecting the environment, but on paper, at least, many of the country's policies are admirably green. The right to an "ecologically balanced environment" is even enshrined in the Brazilian constitution. Now, however, a loose-knit coalition of agricultural and industrial interests is working to undermine the government's authority — and constitutional obligation — to protect the environment.

At issue is Brazil's environmental-licensing system, which governs infrastructure projects ranging from petrol stations to ports, dams and mines. Following international norms, the Brazilian environment ministry reviews and assesses such projects to ensure that they follow the law and protect the environment without infringing on the rights of local communities. This is a cornerstone of modern environmental regulation, but pro-business lawmakers are concerned that it is getting in the way of progress.

As discussed in a News story on page 147, a variety of proposals to streamline the process have been floated in the Brazilian Congress. All are headed in the wrong direction.

The debate has simmered for years, but conservative lawmakers are now capitalizing on the economic recession, corruption scandals and political turmoil that have rocked the country in recent years. Many of the same business interests were behind the 2012 law that weakened protections under Brazil's 1965 Forest Code, a landmark piece of environmental legislation that governs forested lands across the country.

Together, these efforts mark a backlash against the regulatory efforts that helped Brazil to slash the rate of deforestation to a historic low of 4,571 square kilometres in 2012. Since then, however, it has gone up by more than one-third, and could go higher when Brazil releases the numbers for 2016 in the coming days.

As it stands, the Brazilian government has a national plan for energy infrastructure that extends to 2030 and is heavily weighted towards hydroelectricity. The problem is that the plan was apparently produced with little public input, and contains only a simplistic assessment of the environmental and social impacts of installing dams in the Amazon. Once dams are formally proposed, they hit a wall of public opposition.

One solution is to bolster public participation and environmental review during such strategic planning processes. This would enable a broader dialogue among communities, indigenous groups, companies and government officials about where such projects can be placed with the least environmental and social impacts. The process could also focus on the cumulative impacts across the Amazon biome, rather than just the local effects of a particular project. This would take time and resources, but it might head off some of the protests and legal challenges that afflict so many projects today.

The idea of instituting strategic environmental assessments was included in early drafts of environmental-licensing legislation being developed by the environment ministry. This would be a step in the right direction. And if Brazil looked broadly at energy options, it might

also discover that wind and solar electricity offer better opportunities in many places around the country, with fewer risks and headaches. Hydropower has helped Brazil to maintain a low-carbon footprint up until now, but the country should be wary of betting its future on rainfall that may shift to another region as the planet warms in the coming decades.

"Partnerships helped to drive down deforestation, and everybody benefited."

Over the past decade, major beef and soya-bean exporters have made commitments to ensure that they are not contributing to deforestation in Brazil, including by signing moratoria on the purchase of products that come from recently cleared land. Those partnerships among businesses, environmentalists and governments helped to drive down deforestation, and everybody benefited. Today, the powerful agricultural sector continues to grow, despite the recession. But Brazil's reputation, as well as that of its most powerful industry, is back in the balance. ■

Set prejudice aside

Fair evaluation of science requires that the work is judged on its merits, not on assumptions.

In April, for the first time, a couple gave birth to a healthy baby conceived using a new technique that mixes the DNA from three people. This mitochondrial replacement technology seems to have eliminated the disease, the group that performed the procedure announced in September. The scientists and clinicians at the New Hope Fertility Center in Mexico were proud that it happened in their country.

That pride soon turned sour. Scientists and ethics societies elsewhere — who have spent years drawing up guidelines for such a procedure — responded to the surprise announcement with criticism. In interviews and at meetings, researchers and experts raised vague doubts about whether the New Hope team had properly informed their patients, or whether it had broken laws. They pointed out the number of back-alley, questionable stem-cell treatment clinics that exist in Mexico. The implication was clear: the group that did the research had not played by the proper rules, by which they meant the rules the experts themselves had agreed.

New Hope's clinic in Guadalajara is inspected for quality by federal regulators, and the researchers say that an institutional review board (IRB) had approved the mitochondrial replacement project in accordance with federal law. "Why is an IRB in the UK better than ours in Mexico?" medical director Alejandro Chávez-Badiola asked

Nature in an interview. "This is scientific chauvinism."

In fairness, the bad impression was exacerbated by the New Hope clinic's decision to announce its news through the popular media — complete with a rash comment about the lack of research scrutiny — and at a scientific meeting, rather than publishing in a journal. It is true, for example, that the procedure is impossible under current US stipulations. But insinuations that research is problematic purely because of where it is performed are outdated, damaging and elitist.

Stereotypes are not uncommon when researchers talk about those in a different country. They came into focus last year, for instance, when a group of Chinese scientists edited the DNA of a human embryo for the first time. Most reporters who asked around will have heard the same condescending statements about the supposed lower ethical standards in China. It is hard to believe that the same scientists do not make the same comments to colleagues and others.

History can introduce a similar bias. Countries that were denied access to antibiotics for decades during the cold war, such as Georgia, have years of data on the efficacy of phage therapy — killing bacteria with viruses found in the environment. The idea should work, but some infectious-disease specialists in countries such as the United States and the United Kingdom hesitate to consider the potential of phage therapy, largely because it is something that is done in former Soviet states and not in 'modern' medicine. So the cycle becomes self-sustaining, even in the face of rampant antibiotic resistance.

This is not the sort of criticism that shows up in opinion articles or in letters to journals. It is insidious and therefore hard to confront directly. But neither is it necessarily malicious or even intentional. Like any microaggression, it's more likely to be implied, in meaningful statements along the lines of, "Well, it was in Russia, after all..." It is dropped into casual conversation with colleagues or mentioned to reporters by way of explanation. It is impossible to challenge precisely because it is vague and implies 'they don't do things our way'.

There is, of course, a level of realism that should apply to the capabilities of any single group. Discussions need to be had about whether international accord should be reached in certain areas, such as the inviolable Declaration of Helsinki rules on human experimentation. And researchers should not shy away from demanding that researchers from any country be open about the ethical and scientific underpinnings of their work.

But assumptions writ large about science in a particular country harm relationships and risk creating a backlash. They are also unscientific in evaluating work on some basis other than merit. As a result, they risk hurting the openness that is necessary for international relationships to succeed.

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To a large extent, these questions are in the eye of the beholder. Primate research is under legal threat in several European countries. Would critics attack European researchers who travel to the United States to continue their work, in the same way as researchers who travel to a country with fewer regulations on human embryo research?

For better or worse, legal, ethical and even scientific standards are a patchwork and likely to remain so. Many journals try to accommodate this by requiring that an author adheres to his or her own local laws and ethical standards. IRBs set specific protocols for human and animal research, for instance, on a case-by-case basis, in accordance with variables such as state regulations in the United States.

This patchwork demands international dialogue and an openness to achieving understanding and reaching common ground — none of which is helped by assumptions and veiled prejudice. Realizing what prejudices exist — conscious or not — and then considering whether they are valid for the work in question is a necessary step towards the fair evaluation of science. ■

Write on

Biologists are using more informal language in their papers.

We are not supposed to use first-person pronouns, and contractions aren't allowed. These rules also discourage unattended anaphoric pronouns and say that split infinitives should be rarely used. And to start a sentence with an initial conjunction is as bad as to include a listing expression, and so on. Exclamation marks are forbidden!

The rules of academic writing are many, but they have one intention: to avoid informal language, in all its forms. Blogs and social media may encourage authors to write it as they say it, but much of what passes for scholarly and scientific prose is simply not designed for human ears. Academic writing is code, with freedom of expression and emotional range curtailed in favour of explicit meaning and a necessary lack of ambiguity. If nothing else, it (by which we mean academic writing, for those still on the watch for unattended pronouns) is writing that knows its audience and gives them what it (the audience) expects.

But, to use a direct question, another stylistic tool on the banned list, is this academic supply and demand still in place? Do the academics of the Internet age still communicate as stiffly as their colleagues did at the time of the Apollo programme? Or, heaven forbid, has some scruffy informality crept into scholarly discourse?

Yes, and no, according to an illuminating new analysis. Formal language is largely intact, the study finds, give or take a mildly more tolerant attitude to split infinitives and initial conjunctions. Yet there has been an explosion in the use of the first-person pronouns in academic

papers by biologists. What, we wondered, is that all about?

The analysis, published online in the journal *English for Specific Purposes*, looked at the language of academic papers selected at random from several high-impact journals published across a range of disciplines in 1965, 1985 and 2015 (K. Hyland and F. Jiang *Engl. Specif. Purp.* <http://doi.org/bssn>; 2017). If anything, academic publishing in applied linguistics and sociology has become slightly more formal. The number of informal features included in papers in the major electrical-engineering journals went up by 9% over the 40 years. But it was the eye-catching increase of 24% in biology journals that stood out, dominated by a headline threefold increase in words such as I and we.

Personal pronouns are frowned on in academic text, with many guidelines to help novice writers avoid them, chief of which is the use of the passive voice (so we did not see something — instead, it was seen). One explanation for the rise is that as the passive voice becomes less fashionable, one obvious way to restructure sentences is to reach for a personal pronoun.

The passive voice is encouraged in scholarly prose precisely for the reasons that dramatists and journalists try to avoid it: it introduces distance between the action and the protagonist and between writer and reader. This, convention suggests, lends an air of detached objectivity to observations and conclusions. It, perhaps, just feels more scientific. The increased use of I and we, the study authors suggest, could also reflect wider language changes in society, or perhaps is down to the increased number of articles written by people for whom English is not their first language. They may not feel so acutely the sense that writing I or we makes a statement of projected authority.

Another explanation is more subtle. Perhaps modern biologists, under increased pressure and competition, do not feel confident that merely stating their case is enough. Personal language builds a connection to the reader and helps, ultimately, to persuade. We think so. Don't you? ■