

EcoAméricas

A monthly report on development and the environment in Latin America



Region's rightward shift raises ecosystem concerns

Region

Right-wing presidents are proliferating in Latin America, a trend that in June reached Colombia and—if a recently concluded ballot count holds—also Peru. (See related articles—Pages 4 & 5.) In country after country, the consequences are unfolding: environmental-protection rollbacks, stepped-up resource extraction, and a narrowing of avenues by which rural and Indigenous communities can challenge development projects they deem threats to the ecosystems that sustain them.

The view of ecosystem conservation as incompatible with economic growth, an idea that had begun to lose force, is again being promoted from the highest levels of government.

And progress in recent years on biodiversity protection laws, energy-transition commitments and regulatory and judicial review of proposed oil and mining projects is being reversed.

The swing to the right is being felt across an increasingly large share of the region. Presidents leading it, some harder line than others, include Nayib Bukele in El Salvador, Laura Fernández in Costa Rica, José Antonio Kast in Chile, Javier Milei in Argentina, Daniel Noboa in Ecuador and Rodrigo Paz in Bolivia. They will soon be joined by Abelardo de la Espriella, narrowly the victor in Colombia's June presidential runoff, and likely Keiko Fujimori in Peru, who on June

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New effort to conserve Xochimilco canals, gardens

Mexico

Seeds are planted for a new effort to protect Mexico City's Xochimilco agricultural wetland system and the axolotl (*Ambystoma mexicanum*), the iconic aquatic salamander endemic to the area's freshwater channels.

The Xochimilco conservation initiative got a push earlier this year during the March 20-23 International Summit for Life and Peace. Held in Xochimilco, the event drew 170 participants from Colombia, Argentina, Germany, Chile,

Mexico, and the United States for discussions on how to reverse the ecological and socioeconomic degradation of the famous Unesco-listed wetland network. The meeting was held by the Planetary Alliance for Sanctuaries of Life and Peace, a Chiapas-based nonprofit that promotes environmentally sustainable communities.

Xochimilco has been the focus of numerous conservation efforts over the decades. It is prized for its canal system and “floating gardens”—the remnants of ancient farming islands, called chinampas, built by the Aztecs.

On paper, the ancient wetland system is subject to eight resource-protection frameworks, Unesco and the Ramsar Convention on Wetlands among them. But critics say these have had little conservation effect due to a chronic lack of enforcement. Xochimilco's waterways once spanned 170 square kilometers (66 square miles). Encroaching develop-



Green advocates say that unless action is taken, Xochimilco's shrinking network of waterways and lacustrine farming plots could disappear. (Photo by Angela Perryman/Shutterstock)

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Droughts upon droughts in Amazon take a lasting toll

Severe droughts have been occurring so frequently in the Amazon Basin in recent decades that the forest may not have time to recover before the next one hits, according to a new study based on remote-sensing data.

The study, published March 31 in the Proceedings of the National Academy of Sciences, used monthly microwave radar satellite data gathered between 1992 and 2025 to calculate changes in forest biomass and tree-canopy moisture during and after droughts.

In that time, the Amazon was struck by droughts in 1997-98, 2005, 2010, 2015-16 and 2023-24, several of them among the most severe in nearly a century. The study found it took three to seven years for the forest to return to a median recovery level after the droughts, but that did not necessarily mean a return to pre-drought moisture levels.

About 30% to 40% of the forest did not return to pre-drought levels after the various episodes. Using data from pre-2023 droughts to model how the forest is likely to recover after the 2023-24 event, the study found that slightly more than half the forest could be unlikely to return to pre-drought levels of moisture and biomass. As climate change triggers more extreme and more frequent droughts, the authors say, the forest's ability to store carbon and serve as a carbon sink is likely to erode further.

But although remote sensing provides a powerful tool for gathering data across the entire Amazon Basin, the full picture is more nuanced, says biologist Flávia Costa of the

National Institute of Amazonian Research (INPA) in Manaus, Brazil. Because the satellite data is averaged over 25-kilometer-square blocks (625 sq. kms, or 241 sq. miles each), "the area is large, with a lot of heterogeneity," combining forest at different elevations and in different types of soil, Costa says. The average, she adds, "doesn't tell the complete story, because each type of forest is a different forest."

Her own research has shown that forests in areas where the water table is shallow are more resilient to drought than those in areas where the water table is deeper and takes longer to recharge after a long dry spell. Those nuances highlight the importance of maintaining existing networks of field plots in different types of forest across the basin, Costa says, adding that fieldwork "is the only true validation of remote-sensing patterns. You need people to still collect the data."

Tropical ecologist William Laurance of James Cook University in Queensland, Australia, agrees that satellite complements but cannot replace field data, although remote sensing is constantly improving and artificial intelligence will probably provide a bigger boost.

Nevertheless, "recovery time is a legitimate [issue] to be raising," especially with infrastructure projects in the works that would open up Amazonia "like flaying a fish," he says. Those include the paving of Brazil's north-south BR319 highway, which would bisect the Amazon, and a China-backed proposal for an Atlantic-to-Pacific train route.

Unplanned roads, deforestation and settlement that tend to follow infrastructure construction would increase deforestation and the drying of forests, making them more vulnerable to drought, Laurance notes, adding: "Once a road goes in, it changes [forest] dynamics fast."

Follow-up: Flávia Costa, INPA, anfe@inpa.gov or flaviacosta001@gmail.com; William Laurance, James Cook University, Queensland, Australia, bill.laurance@jcu.edu.au. The study, "Unprecedented Amazonian rainforests damage during the 2023-2024 droughts," is available at: <https://bit.ly/3QOWPyu>.



Kemp's ridley rebound detected in Tamaulipas

The world's rarest sea turtle is having a remarkable year.

On the Gulf Coast beaches of Tamaulipas state in northeast Mexico, where roughly 95% of world Kemp's ridley (*Lepidochelys kempii*) nesting occurs, authorities logged 2,476 nests and over 222,000 eggs under protection as of mid-May.

Those are unusually high mid-season figures. In just 48 hours in April, nearly 7,000 females came ashore at Playa Rancho Nuevo, depositing eggs along roughly 30 kilometers (19 miles) of coastline in a mass nesting event.

The Kemp's ridley is the smallest of the sea turtle species, measuring about two feet in length and weighing up to 100 pounds. It is also the world's most endangered, classified by the International Union for Conservation of Nature (IUCN) as critically endangered.

Kemp's ridleys nest almost exclusively during the day. This makes them more vulnerable than other sea turtle species, which typically come ashore to bury their eggs under the cover of night.

The Tamaulipas' state Commission for Parks and Biodiversity (CPBT) attribute the rising numbers in part to intensified coastal monitoring aimed at deterring poachers' theft of eggs from sea turtle nests and protecting females during spawning.

The CPBT is coordinating protection across five strategic

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Screwworm makes it north of U.S.-Mexican border

Mexico-United States

A flesh-eating worm that ripped through Central America and Mexico over the past three years was detected in June in the southern United States, threatening America's cattle heartland and setting the stage for a costly eradication effort. The United States Department of Agriculture (USDA) reported over two dozen cases of New World Screwworm (*Cochliomyia hominivorax*) in Texas and New Mexico in the first three weeks of June.

The infestations ended a 60-year period during which the United States was mostly clear of the pest and prompted calls for a faster, more innovative government response. U.S. Secretary of Agriculture Brooke Rollins in June called the pest “a serious threat to our wildlife and our livestock,” but dismissed accusations by local agriculture officials and politicians that the government had been slow to act. “We were not caught off guard,” said Rollins at a press conference in Kerrville, Texas on June 8. She added, “We have fought before, and we will do so again.”

Screwworm larvae hatch from eggs laid by adult blowflies in an open wound. They feed on warm-blooded animals and can kill livestock and wildlife in a couple of weeks. A US\$1 billion campaign to breed sterilized blowflies that mate with wild ones helped banish the parasite from North America in the 1980s and Central America in the early 2000s. Afterward, the screwworm was kept from the two regions by releasing sterile flies over the Darién Gap jungle that straddles the Panamanian-Colombian border.

Unwelcome advance

But in 2021, the screwworm breached the Darién Gap, spreading northward with the aid of smugglers transporting cattle to Mexico. On June 3, the first U.S. case was reported in the umbilical wound of a calf in Zavala County, Texas, about 50 miles (80 kilometers) from the Mexican border. As of June 26, the USDA had recorded 25 cases in cows, sheep, goats and a dog in Texas and New Mexico.

The U.S. outbreak is incipient. Mexico has around 2,000 active infections and over 30,000 cases have been reported there since Nov. 2024. Live-cattle exports from Mexico to the United States fell 80% last year to around US\$230 million after the late-2024 closure of U.S. ports of entry to livestock from Mexico. (Mexico halted livestock trade in the other direction on June 9.)

To beat back the screwworm, the United States and cross-border partners must boost the number of sterile screwworm blowflies they breed and release to around 600 million per week, experts say. That's a distant goal. Currently, 100 million flies are bred weekly at a Panamanian facility for dispersal in Texas and on part of the U.S.-Mexican border. A Chiapas, Mexico

facility outfitted for sterile-fly production at a cost of US\$51 million opened in June and will supply 100 million flies weekly, Rollins said.

Meanwhile, the USDA and the U.S. Army Corps of Engineers are building a facility at Moore Air Base in Texas with the aim of producing 100 million flies per week by Nov. 2027 and eventually 300 million weekly. The U.S. government is also mulling approval of a technique to produce entirely male cohorts of sterile blowflies. This would vastly improve efficiency by ensuring sterile flies mate exclusively with wild females, says Maxwell Scott, a professor of entomology and plant pathology at North Carolina State University. Developed a decade ago, the technique has yet to be deployed, notes Scott, adding: “The next test is to see how well it does in the field.”

Scores of proposals

The quest for other anti-screwworm tools includes around \$100 million in government funding for 40 proposals submitted by universities and private companies to improve the production of sterile flies; develop lures and traps for blowflies; improve detection and develop treatments for infections.

There is much at stake. Cattle ranching in Texas generates US\$15 billion a year, and the USDA estimates losses from a serious outbreak would be about \$1.8 billion a year. The fly could threaten animals in any state south of Kentucky, Virginia and Utah, says a study, published last year in *Nature*, that maps biological and climate conditions in which screwworms thrive. And global warming could expand that area, warns study co-author Andrés Lira-Noriega, an evolutionary biologist at the Mexican Ecological Institute. Warmer climates also allow for faster reproduction, the study showed.

In Central America, the infestation is estimated to be costing hundreds of millions of dollars annually. In South America, where the screwworm is endemic, losses are estimated to run in the billions. Some experts say the U.S. government has overlooked trusted tools. Texas Agriculture Commissioner Sid Miller in June urged approval of the Screwworm Adult Suppression System, which employs bait and insecticide to kill blowflies. The system helped blunt previous outbreaks, he said.

Meanwhile, no amount of sterile flies will defeat the pest unless Mexico and Central American nations curb cattle smuggling, says Jeremy Radachowsky of the Wildlife Conservation Society. Said Radachowsky: “The way to protect livestock, wildlife, rural livelihoods, and taxpayers is to cut off the trafficking routes.”

—Victoria Burnett



New World screwworm fly *Cochliomyia hominivorax*.

(Photo by Shutterstock)

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Documents & Resources

USDA screwworm page:
<https://bit.ly/4gLfFWW>

Study of the reemergence of the New World screwworm and its potential distribution in North America:
<https://bit.ly/4xKlf8i>

Election result signals end of Petro's green agenda

Colombia



President-elect Abelardo de la Espriella
(Photo by Anamaria Mejia/Shutterstock)

Right-wing criminal defense lawyer Abelardo de la Espriella won Colombia's presidential runoff on June 21, paving the way for a political U-turn that will likely involve a hasty retreat from current leftist President Gustavo Petro's ambitious environmental agenda.

De la Espriella, an admirer of Donald Trump who has pledged to boost fossil-fuel exploration and production, narrowly defeated left-wing candidate Iván Cepeda in a runoff. Scheduled to take office Aug. 7, he is expected to abandon Petro administration priorities such as a quick transition to renewable fuels and Amazon rainforest conservation.

Under the four-year administration of Petro, who was prevented by the constitution from seeking reelection, Colombia has positioned itself as a leader in forest protection and climate action. His government oversaw a decline in Colombian forest loss to its lowest levels in years, suspended new oil and gas exploration contracts nationwide, and in April hosted the first international conference dedicated to speeding the world energy transition.

De la Espriella's platform calls for more renewable energy and a crackdown on environmental crime, but also for a major expansion of oil and gas production on grounds it would bolster energy security and economic development. He has pledged to resume oil and gas exploration and launch pilot projects to test hydraulic fracturing, or fracking. (See Q&A—this issue.) Addressing what he describes as a "great problem" for the energy sector, he has also vowed to issue a decree to expedite environmental permitting for development projects.

"There is a significant gap between Colombia's current position and De la Espriella's proposals if they are implemented," says Andrés Gómez, a petroleum engineer and Latin America coordinator for the Fossil Fuel Non-Proliferation Treaty Initiative, an international campaign for a global phase out of fossil fuels.

Fracking pilots

One of De la Espriella's most controversial proposals is to resume fracking pilot projects halted under the Petro administration over green concerns. De la Espriella argues fracking is needed to replenish declining oil and gas reserves and can be done safely. Gómez counters that pilot fracking consumes 48 million liters of water per well, adding that if commercial production is approved, some 12,000 wells could be drilled over a decade, taxing water sources.

There are also concerns that the projects' drilling waste will include heavy metals freed from rock formations of the Middle Magdalena Valley Basin, a wetland region selected as the pilot area for fracking. "Bringing those metals

to the surface would create an additional risk, especially in an ecosystem of wetlands along the Magdalena River and one of its most biodiverse regions," Gómez says.

Another point of contention for Gómez is De la Espriella's pledge to nearly double oil production, from about 740,000 barrels per day to 1.3 million. He argues this would undermine Colombia's climate commitments under the Paris Agreement, which include reducing greenhouse-gas emissions by 51% by 2030, achieving net-zero emissions by 2050.

"There's no coherence there whatsoever," Gómez argues. "You can't talk about fracking and expanding the oil frontier in a global climate crisis, especially when Colombia is one of the countries most affected by climate change."

Eyes on Amazon

Bram Ebus, a consultant on environmental crime for the International Crisis Group, a nonprofit conflict-resolution think tank, worries De la Espriella might reverse a ban Petro imposed on new mining and fossil-fuel extraction in the Amazon region.

"The Amazon is viewed by the president-elect as an area that must be controlled, dominated, and exploited," Ebus says.

He also is concerned De la Espriella's promise to shrink the state by 40% could weaken government oversight of extractive projects. "Many agencies play a critical role in overseeing the environmental impacts of the extractive sector," Ebus says. "We are concerned those checks and balances could disappear."

There's also the question of how the new administration will address deforestation. Under Petro, forest loss dropped in part thanks to peace talks his administration held with armed groups that control large parts of the Amazon, where deforestation is concentrated. De la Espriella has pledged to end those talks on grounds the government shouldn't negotiate with criminals. Ebus says it remains unclear how armed groups will respond.

"It remains to be seen whether armed groups will lose interest in escalating deforestation," said Ebus. "Or armed groups may once again use deforestation to pressure the government and, above all, shape public opinion."

Ebus also questioned De la Espriella's plan to curb deforestation and illegal gold mining through a militarized crackdown of the sort the Trump administration advocates. He argues that strengthening green-friendly economic development in forest communities and cracking down on the financing of environmental crime would be more effective.

—Christina Noriega

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Environmentalists worry as Fujimori nears victory

Peru

Peruvian environmental and human rights advocates this month sensed hard work ahead as the vote-count following the country's June 7 presidential runoff showed right-wing candidate Keiko Fujimori leading leftist Roberto Sánchez.

Fujimori—daughter of the late Alberto Fujimori, Peru's authoritarian president from 1990 to 2000—was 49,641 votes, or 0.27%, ahead of Sánchez as of June 29, with 100% of ballots tallied. However, authorities had yet to issue an official declaration of the outcome.

During the campaign, neither Fujimori nor her Fuerza Popular party made significant mention of environmental-governance challenges such as deforestation, mercury contamination from illegal mining and incursions into Indigenous territories by illegal loggers, drug runners, miners and more. Though Sánchez and his Juntos por el Perú party focused on wealth and land redistribution, they advocated for forest protection and Indigenous land rights.

The word “Indigenous” only appears four times in Fuerza Popular's 144-page proposed governing program for 2026-2030. The document makes no mention of semi-nomadic peoples who shun contact with outsiders yet are increasingly seeing natural lands they depend on consumed by development, legal and illegal.

“Fujimori's party is obsessed with industrialization and stimulating economic growth,” says Julia Urrunaga, director of the Peru program at the Environmental Investigation Agency, a global nonprofit that spotlights environmental crimes worldwide. “We are afraid they will continue to diminish environmental standards to make investing in the Amazon easier for companies in agribusiness or oil.”

Environmental rollbacks

In recent years, the Peruvian Congress has weakened the country's environmental laws. (See “Amid chaos, Peru eases environmental restrictions”—EcoAméricas, Nov. '25.) Fuerza Popular had a majority in Congress during those years, and Fujimori was the party leader, although she held no government office.

One legislative change made it easier to retroactively legalize deforestation that was prohibited when it occurred. Another, to take effect in January, will require nonprofits receiving international funding to file a detailed work plan with the government at the start of each year—and to obtain authorities' approval for it.

The law also prohibits advocacy groups with foreign funding from participating in lawsuits against the Peruvian state, thus curbing legal actions brought in defense of the environment. “It's censorship,” Urrunaga says. “They can forbid you to work in a certain region or with

a certain community.” Some groups are already changing the wording they use in their plans, she says. Noting Fuerza Popular accomplished this in concert with other right-wing parties without holding the presidency, she adds, “It's really scary what they will be able to do” assuming they will now control the executive branch.

The environment barely figured in the two pre-runoff debates, one involving Fujimori and Sánchez and the other featuring their technical teams. But the Development Analysis Group (Grade), a nonprofit Peruvian research center, organized a separate session in late May in which one campaign advisor from each of the opposing camps presented their candidate's positions on such issues as conservation areas, Indigenous rights and environmental law.

Focus on investment

Fujimori's representative, Carlos Paredes, told the audience of environmentalists, lawyers and scientists that her party seeks sustainable development for the entire country, and that deforestation cannot be controlled unless companies invest in the Amazon. If people have jobs, he said, they'll be less inclined to fell trees. He added Fujimori would combat illegal economies “head on,” deploy the military and police to illegal mining areas, and promote ecotourism and the sale of carbon credits.

Catherine Eyzaguirre, representing Juntos por el Perú at the Grade event, said Sánchez sought economic development, too, but without harming the environment and with an emphasis on land-use planning and community involvement. Sánchez had also pledged to repeal the law that facilitates the legalization of deforested land and promote ratification of the Escazú accord, a regional treaty that requires protection of environmental activists and transparency in environmental decision-making.

“What I missed in both party proposals was that they grasp the important role environmental governance plays in Peru's development,” says moderator Mariano Castro, a former environment vice minister now with Grade.

Lucila Pautrat, director of Kené, a green group focused on Amazonian issues, agrees. “[P]rotected areas generate income for Peru and its regions,” she says. “Protected areas don't prevent economic development.” Pautrat says her main concern is that a Fujimori government would undercut basic rights: “We will not have a state that guarantees rights, but rather one that promotes mercantilism, mining and industry.”

Urrunaga acknowledges “many reasons to be nervous,” but adds: “We'll find a way to fight back. Peruvians are very resilient people.”

—Noah Moeys



Keiko Fujimori (top) narrowly led Roberto Sánchez (below left) as of June 29, with 100% of ballots counted.

(Photos by Noah Moeys)

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Documents & Resources

Fuerza Popular Party:
<https://fuerzapopular.com.pe>

Juntos por el Perú Party:
<https://jp.org.pe>

Centerpiece

Brazil launches plan to promote ‘bioeconomy’

Brazil

Brazil has unveiled a National Bioeconomy Development Plan (PNDBio) aimed at making sustainable use of the country's ample biodiversity a major focus of economic development by 2035.

The launch has raised some fundamental questions, however. Among them: What activities, exactly, constitute a bioeconomy? Also, how will the sustainable use of resources be defined and monitored?

The plan, launched on April 1, calls for government loans, price subsidies and other support to promote output of value-added products ranging from biofuels and foods to plant-based medicine and cosmetics. Particularly high on the priority list are products whose sustainable processing can give Amazon communities a strong economic stake in forest protection.

“We can create a new paradigm for sustainable development in the Amazon by harnessing biological assets of the forest—its fruits, nuts, fibers, saps and resins—to improve biotechnologies and turn out value-added Amazon-forest products, be they foods or medicines, and expand markets here and abroad,” said Brazilian climatologist and earth-system scientist Carlos Nobre.

As an example of strong but largely untapped potential on that score, Nobre points to açai. A berry that grows on palm trees of the same name, the versatile açai has become popular as a healthy food ingredient across Brazil and abroad partly due to its antioxidant qualities.

“The Brazilian Amazon almost always exports açai in berry form to markets in the United States, Europe and [into the domestic market in] Brazil, but 80% of the profits from the açai berry come from processing it into pulp, almost all of which is done by companies in the [foreign] countries and in the [non-Amazon] Brazilian states that import it,” Nobre says. “If Brazil could invest in the biotechnologies to process açai berries in the Amazon and export the processed pulp, it would create a far more robust income base for the Amazon communities that now pick and gather those berries.”

The bioeconomy plan unveiled in April comprises three sets of goals to be undertaken simultaneously for completion by 2035.

The first set aims to dramatically expand

A rural extractivist community member in the Amazonas state municipality of Carauari uses a sieve to clean recently harvested berry fruit of the açai palm.

(Photo courtesy of Ricardo Oliveira/Tyba)



green friendly economic opportunities for low-income family farmers, Indigenous groups and other rural people. This would be pursued by various means, one of which would be to expand government payments to small-farming, Indigenous and traditional communities that provide “environmental services” such as forest and watershed protection. Minimum prices for “socio-biodiversity” products like tropical fruits, nuts, plant oils and tree resins would also be increased.

The plan also calls for establishing contracts with Indigenous and traditional communities on the sharing and commercialization of genetic knowledge based on rainforest plant, animal and microorganism resources. In addition, it aims to rehabilitate degraded pastureland for future small-scale cultivation and make large tracts of federal land available for ecotourism and green-forestry concessions compatible with woodland regeneration.

The plan's second set of goals seeks to boost bio-industry by using native plant varieties and other genetic resources to develop new herbal medicines for Brazil's public-health system. Such value-added products could be based on already-exploited

Amazon medicinal plants such as *Uncaria tomentosa*—a thorny vine known in Brazil as “unha-do-gato” and internationally as cat's claw—and *Mikania glomerata*, a vine known worldwide as guaco. (See accompanying list of some of these natural ingredients in plant-based products.) And the third set of goals promotes biomass production, partly by developing new bio-technological processes to enable the conversion of biomass—sugarcane waste, wood waste and animal waste, for instance—into biofuels as well as non-energy products that add value.

Brazilian officials estimate the bioeconomy accounts for 25% of the country's R\$12.7 trillion (US\$2.2 trillion) economy. And they forecast that PND-Bio economic incentives could generate up to US\$284 billion annually in additional value by 2050, according to the Ministry of Development, Industry and Commerce (MDIC). Experts note, however, that while the new plan sets broad strategy, it has yet to address key definitional, regulatory and financial details.

“The PNDBio is a positive and wide-ranging plan, which covers everything from agricultural to bio-technological advances,”



Former Environment Minister Marina Silva attended the launch of the Bioeconomic Development Plan.

says Vinicius Oliveira da Silva, a public policy specialist at the Institute of Energy and the Environment (Iema), a São Paulo-based nonprofit energy think tank. “But the government needs to more specifically define what activities comprise the country’s bioeconomy, something that is not done in the PNDBio, and draft public policies to support and regulate them, as well as provide robust and long-term financing to implement these policies, which is an ambitious undertaking.”

Experts generally consider the bioeconomy to comprise activities that result in natural-resource-based products ranging from biofuels and medicines to textiles, tires, and renewable energy. The food and biofuels categories are assumed to include crops such as sugarcane and soybeans—products Brazil leads the world in producing and exporting—and the vast quantities of sugarcane- and corn-based ethanol and vegetable-based biodiesel Brazil makes from soybeans and other crops.

Livestock production also looms large in informal definitions of the bioeconomy. For instance, Brazil’s world-leading beef output and exports are rooted in the extensive use of natural grasses and grains as cattle feed.

Experts say PNDBio must eventually define the components of the bioeconomy and create the policies and regulations needed to monitor and ensure its environmental sustainability. This can be a fraught topic, particularly when it comes to agrochemical-intensive monocrop soy cultivation and the ranching industry, which has been associated with deforestation.

Yet some analysts—IEMA’s Oliveira da Silva among them—point out that the PNDBio does help prepare the way for this important groundwork.

“The absence of a detailed operational definition of what constitutes an environmentally sustainable product is a limitation of the PNDBio, but it does not mean that the plan is devoid of references or sustainability parameters,” Oliveira da Silva says. “The document establishes, in a transversal way, that bioeconomy actions must be aligned with the environmental, climate, and social commitments assumed by the Brazilian state, incorporating concepts such as biodiversity conservation, environmental regeneration, productive restoration, traceability, certification, recovery of degraded areas, respect for the rights of Indigenous peoples and traditional communities, and reduction of greenhouse gas emissions. In addition, various strategic actions foresee mechanisms for certification, life cycle assessment, biomass traceability, emissions monitoring, and environ-

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Value-added conservation

One aim of Brazil’s bioeconomic strategy is to ensure that more value-added processing of plant-based ingredients used in natural products occurs in rural regions where those inputs originate. Promoters say this will boost local communities of the Amazon and other biomes, creating incentives for them to safeguard natural resources. Some examples of these ingredients:



Cupuçu—Aromatic “super-fruit” from the *Theobroma grandiflorum* tree is used in foods and cosmetics, and said to confer immunological, anti-inflammatory and cardiovascular benefits.



Buriti—Fruit from the *Mauritia flexuosa* palm-tree is seen as a source of fatty-acid and fiber and is said to have antioxidant, prebiotic and antimicrobial properties.



Unha-do-gato—Known internationally as cat’s claw, this woody vine found in South and Central American forests is credited with anti-inflammatory, immunological, and antioxidant benefits.



Pracaxi—Seeds from *Pentaclethra macroloba*, an Amazonian tree species, yield oils used in food, cosmetics, and pharmaceuticals.



Bacuri—Fruit from the tropical South American palm *Platonia insignis* is used in food products and cosmetics.



Guaco—The *Mikania glomerata* vine yields products used in the treatment of respiratory problems including bronchitis and asthma.



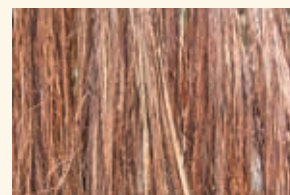
Taperebá—Fruit from the Amazonian tree *Spondias mombin* can be used as an ingredient in juices, ice cream and processed foods, as well as in traditional medicine.



Tonka bean—Seeds from the Central and South American tree *Dipteryx* are used in fragrances and flavorings.



Peach palm—Heart-of-palm of the Amazonian *Bactris gasipaes* palm can be made into food products and flour.



Piassava—This fibrous product—obtained primarily from the South American *Attalea funifera* and *Leopoldinia piassaba* palms is made into brooms and textiles.

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Documents & Resources

An Environmental and
Climate Change Ministry
press release of the PNDBio
is available in Portuguese at:
<https://bit.ly/4oNhrnk>

The 88-page executive sum-
mary of the PNDBio is avail-
able in Portuguese at:
<https://bit.ly/44BKQri>

mental compliance, demonstrating that sustainability is present as a structuring principle of the plan.”

Adds Oliveira da Silva: “The plan presents a strategic and guiding vision, but still lacks normative and methodological instruments that allow its principles to be transformed into verifiable and comparable metrics. This challenge does not invalidate the plan nor compromise its central objectives, but it indicates an important agenda for the next stages of implementation, especially in the development of indicators, certification systems, eligibility criteria, and monitoring mechanisms that ensure greater clarity regarding which activities can actually be considered sustainable within the national bioeconomy strategy ... From this perspective, crops such as soy, corn, and sugarcane are not necessarily excluded from the bioeconomy, but their compatibility with the objectives of PND-Bio depends on the conditions under which they



In Brazil, ethanol costs less than gasoline due to government tax subsidies that aim to promote the plant-based fuel and also because it contains less energy per liter, typically yielding 20% to 30% fewer kilometers than gasoline.

(Photo by Cesar Diniz/Pulsar/Tyba)

are produced, the associated environmental impacts, and compliance with the socio-environmental safeguards provided for by the plan.”

Implementation of PNDBio will be overseen by the National Bioeconomy Commission (CNBio), a governance body created for the purpose in 2024. The 34-member commission comprises 17 officials from a variety of government agencies and 17 representatives of the private sector, civil society and academia. It is supported by the Technical Chamber for Monitoring and Bioeconomy Intelligence (CTMIB), which was created to carry out that role under the auspices of Brazil's Ministry of Science, Technology and Innovation (MCTI).

The PNDBio plan's progress will be tracked using a theory of change model that addresses environmental, social and economic factors. A performance- and sustainability-monitoring system and related infrastructure

will be built and operated by the National Bioeconomy Information and Knowledge System (SNICBio), established in 2025.

PNDBio is slated to receive initial financing of R\$357 million (US\$69 million) from the Amazon Fund, the US\$1 billion rainforest-protection mechanism built largely with contributions from foreign governments and managed by Brazil's Development Bank (BNDES). The fund has committed R\$1.6 billion (US\$350 million) towards bioeconomy-related projects in the Amazon since its inception in 2008.

Support is also coming from a public-private sustainable-development investment initiative, Eco Invest Brasil. Created under a 2024 law, the program uses a blended-finance approach in which Brazil's National Treasury lends money to banks at an annual interest rate of 1%. The banks must mobilize at least four times that amount in private sustainable-development investment, with at least 60% required to come from international sources.

So far, a total of R\$140 billion (US\$28 billion) in combined public and private resources have been pledged under Eco Invest Brasil, some of it for PNDBio projects. In May, the government said it is committing R\$3.1 billion (US\$617.5 million) and that eight banks had pledged another \$R10.1 billion (US\$2 billion) for bioeconomic investment in the Amazon region under the Eco Invest Brasil initiative.

Nobre agrees with Oliveira da Silva about the need for a robust, long-term strategy to finance the PNDBio. “The government's R\$357 million [US\$69 million] in initial financing was just seed capital needed to get the PNDBio off the ground, but it is a good start,” Nobre says. “The Eco Invest Brasil program financing commitments announced in May to fund PNDBio with an additional US\$2.617 billion is essential for developing and accelerating PNDBio.”

Appraising the plan overall, Nobre says: “The PNDBio is full of good initiatives, especially those that target low-income-based family farmers [and] extractivist, traditional and Indigenous communities. Even though these peoples account for a very small share of the 25% of GDP that Brazil generates with its bioeconomy, they are among those most in need of federal assistance and protection.”

He adds: “It's also good that PNDBio initiatives don't include incentives or initiatives that would expand the agricultural frontier in a way that would fuel more deforestation. It's important that Brazil sustainably increase its bioeconomy via low-carbon agriculture, that which produces more crops on existing land, including that which has been degraded.”

—Michael Kepp

Rightward shift
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29 held a slim lead at the end of lengthy count of runoff ballots but had yet to be declared the winner by Peru's National Electoral Jury (JNE).

A further test of the trend comes later this year. In October, left-leaning Brazilian President Luiz Inácio Lula da Silva will stand for reelection. Among his challengers is hard-right candidate Flávio Bolsonaro—son of former President Jair Bolsonaro. The elder Bolsonaro, now serving a 27-year sentence for attempting a coup after losing a 2022 reelection bid, slashed environmental protections and presided over a major surge in Amazon deforestation while in office from Jan. 2019 to Dec. 2022.

The right-of-center presidents all aligned with U.S. President Donald Trump, who wants to secure Latin American resources for the United States in competition with China. Ezio Costa—a professor at the University of Chile and director of the nonprofit environmental-law firm FIMA—cites two examples. One was Argentina's recent weakening of its glacier-protection law to allow more mineral extraction in the Andes. Another is the dismantling of Ecuador's Ministry of Environment, Water and Ecology and the transfer of its duties to the Ministry of Energy and Mines. Costa warns right-wing groups "aim to accelerate the flow of capital regardless of the [environmental] cost; they have evident ties to major global investors and align with U.S. policies at the expense of local protections. Furthermore, they do not value community participation, which is ultimately what ensures environmental protection."

Ignoring public opinion

The rightist leaders have won support by spotlighting crime and illegal immigration, but their green policies often run counter to public opinion. "In Ecuador, a 2023 referendum decided oil in Yasuní National Park should be left in the ground, yet the government failed to honor that mandate," says Gustavo Redín, vice president of the Ecuadorian Coordinating Committee of Organizations for Defense of Nature and the Environment (Cedenma). "Similarly, a referendum in Cuenca, in the south of the country, categorically rejected mining, but the government decided to press ahead with [it]."

Nadino Calapucha, an Indigenous environmental activist from the Kichwa nation in Ecuador, notes left-wing governments in Latin America also have driven the expansion of oil, mining, and agribusiness frontiers as the new right-wing governments are now doing. But the current scenario, he says, is more alarming.

"Indigenous peoples are being stripped of their rights," Calapucha says. "The Ecuadorian Constitution mandates prior, free, and informed consent from communities for proj-

ects involving natural resources, yet there are moves to eliminate this requirement."

To spur resource-extraction, some governments have made it harder to engage in protest, litigation and civil-society organizing, says Salvadoran activist Pedro Cabezas, coordinator of the Central American Alliance Against Mining (Acafremin). "All those democratic tools for exerting influence helped bring about the ban on open-pit mining in El Salvador from 2017 to 2024," Cabezas says. "But today in Central America, criminalization of environmental defenders is intensifying, NGO access to foreign funding is restricted, and judges beholden to governments and multinational pressure are being appointed. Those fighting for the environment face increasing lack of protection."

Caribbean perspective

Carolina Sánchez Naranjo, an activist with the Greater Caribbean for a Fossil-Free Future Network, says right-wing governments in her region are leaving clean-power development to the private sector while using state resources to boost oil development. "An increasing number of Caribbean countries are betting on oil," Sánchez says. "Guyana is the newest petro-state, and Suriname aims to follow suit. This year, Jamaica, Barbados, and Honduras announced the start of offshore exploration. U.S. companies are involved in many cases. Even in Costa Rica, where oil activity has been banned for over 20 years, there is pressure to resume it."

Miguel Vargas Delgado, a Bolivian attorney who has represented human rights groups, says the pursuit of Latin American resources ranging from oil and gas to gold and lithium leaves Indigenous communities vulnerable.

"In Bolivia, a political cycle that began in 2003 with protests over ownership and management of natural gas and water is ending," Vargas says. "That process enabled the [election] of the first Indigenous president, Evo Morales, and the historic recognition of community rights in the 2009 Constitution. That era is over. Rights are being stripped away to incentivize large-scale investments in these territories."

Andrés Nápoli, director of the Argentine Environment and Natural Resources Foundation (FARN), forecasts repression of this sort will intensify. "The agenda is centered on the economy, private investment, and security; environmental concerns are no longer a priority," Nápoli says. "We can expect climate policies to continue losing ground, tensions with Indigenous peoples and local communities to escalate, and environmental oversight institutions to be further weakened."

—Daniel Gutman



Indigenous Mapuche demonstrate against the Vaca Muerta shale-oil and -gas megaproject in Argentine Patagonia. (Photo by Martín Álvarez Mullally/Opsur)

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Xochimilco continued from page 1



The axolotl, endemic to Xochimilco, is viewed as a bioindicator of the area's struggling lacustrine and wetland ecosystem. (Photo by Henne Damke/Shutterstock)

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ment has reduced them to some 20 square kilometers (8 sq. miles) today.

"We are calling on the [federal-government] anti-corruption system to start a special unit dedicated to anticorruption in nature and we are proposing Xochimilco be the pilot case for the country," says Luis Alberto Jiménez, an environmental activist and summit organizer. "Mexico already has the environmental laws. What it's missing is the enforcement. We want to see people being sanctioned for polluting the water, building illegally on the agricultural land and other crimes that today go unpunished."

Summit attendees included traditional farmers, Indigenous elders, scientists, policymakers and more, the goal being holistic solutions rather than piecemeal approaches. They focused on three challenges: restoration of the chinampa agroecological system as a climate-resilient food production model; legal and governance steps to aid protection of Xochimilco's water systems and communal land rights; and strategies to address pollution, urban encroachment and biodiversity loss.

Xochimilco, located 15 to 18 miles (24 to 30 kilometers) from the historic center of Mexico City, provides essential environmental services for the capital and the wider Valley of Mexico. These include groundwater recharge, natural water filtration, temperature regulation, flood mitigation, and carbon sequestration. It also helps underpin local food systems and holds cultural value. Conference members declared the area a "Sanctuary for Life and Peace," saying "cultural, ecological, and food security of millions of people depend on this ecosystem, which today faces a critical threat."

Rights of nature

Their aim is to initiate a community-led push that by 2030 will secure legal "rights of nature" for Xochimilco and its axolotl, a critically endangered, microendemic amphibian that is ostensibly protected under Mexican law. To prevail, organizers must gather the signatures of 0.13% of Mexico City voters in support of the proposal and find a lawmaker to successfully sponsor it as legislation in the Mexican Congress. The Planetary Alliance for Sanctuaries of Life and Peace is pursuing a similar initiative in Bacalar, the municipal seat of Quintana Roo state. In that case, the group is seeking protection of living, rock-like fossil reefs, called stromatolites, in an enormous freshwater lake near the border of Belize known as Lake Bacalar, or Lagoon of Seven Colors.

"Species in danger of extinction are ... protected because of services they provide humans," says Patricia Espinosa, an environmental engineer and environmental-law instructor at Earth

and Life University in Playa del Carmen, Quintana Roo. "This is an anthropocentric vision. But when a species is recognized to have its own legal rights, the state's obligations change."

Experts consider the axolotl a bioindicator of the ecological health of the wetland area, with its population decline linked to local habitat loss, water contamination and invasive species. Mexico City has included the axolotl among the images it has used in promoting the 2026 World Cup, a move Espinosa and others criticize on grounds it devalues the conservation objective. "While the axolotl is dying along with its habitat, others are profiting from the image," Espinosa says. "The income from this symbol should really be contributing to the conservation efforts so urgently needed."

Multiple recommendations

The summit statement calls for steps including improvement of water quality and environmental flows; creation of refuges and ecological corridors; captive breeding, reintroduction and scientific monitoring of the axolotl; and integration of conservation with community-based management and education. It also advocates control of invasive species, such as tilapia (*Oreochromis niloticus*) and carp (*Cyprinus carpio*), which feed on axolotl eggs and disturb habitat. Results of a 2024-2025 axolotl census are expected in the coming months, but the International Union for the Conservation of Nature (IUCN) estimates fewer than 1,000 of the salamanders inhabit Xochimilco waters.

While the summit included traditional ceremonies with spiritual leaders and offerings to local deities, its official statement also provided a proposed framework for conservation actions along with timelines and accountability mechanisms. The actions included canal rehabilitation, wastewater control, reducing agrochemical use and recovery of chinampas, as well as involvement of communities, scientists and authorities in a governance process.

Conferees argue Xochimilco represents something rare: intensive, low-impact agriculture in an urban environment. The model, they say, offers transferable lessons for wetland conservation, food security and climate adaptation.

"If we lose the lacustrine farming system of Xochimilco, the world will lose its most productive agricultural system," says Jiménez. "If 100% of Xochimilco's islands were used for agriculture, they could provide 60% of the capital's food, yet only about 1% are currently farmed in the traditional way. If the trend is not reversed, Unesco predicts the world will lose this ingenious tradition within two generations."

—Lara Rodríguez

Around the Region continued from page 2



Kemp's ridley nesting has surged on Tamaulipas state's Gulf of Mexico beaches, where 95% of the critically endangered reptile's egg-laying occurs. (Courtesy photo)

sites on the Gulf Coast: La Pesca, Tepehuajes, Altamira, Miramar, and Matamoros.

The Kemp's ridley comeback is an example of successful binational cooperation. In 1947 a researcher counted more than 40,000 nesting turtles at Rancho Nuevo in a single day, but by the following decades, that figure had collapsed to under a thousand nests per season.

In 1978, with the species in severe decline, the United States and Mexico established a formal binational program that brought together U.S. and Mexican officials and agencies. Joint efforts were launched to protect nests on both sides of the border and to enforce regulations requiring commercial fishing trawlers to outfit their nets with turtle-excluder devices, which shunt sea turtles aside so they don't get caught in the nets and drown.

A central strategy was to create a secondary nesting colony at Padre Island National Seashore in South Texas, a site selected for its long-term federal protection and undeveloped beaches. A portion of the Rancho Nuevo sea-turtle eggs were collected annually and sent to Padre Island from 1978 to 1988 in an operation the U.S. Fish and Wildlife Service described as "a geographic

safeguard against extinction."

The fruits of that strategy are now visible on the U.S. side as well. In 2025, a record 449 Kemp's ridley nests were documented along the Texas coast, the highest count since record-keeping began in 1978. According to the U.S. Fish and Wildlife Service, 408 Kemp's ridley nests had been recorded on the Texas coast by May 20, including 206 at Padre Island National Seashore.

While the figures are encouraging, the U.S. Fish and Wildlife Service warns that as the sea-turtle population grows it could increasingly tax local food sources and habitat. This, the agency says, could wind up "limiting the number of nesting attempts in a year or causing a longer remigration interval."

Final numbers for this year will be available once the April-through-August nesting season ends. Current mid-season numbers offer grounds for optimism, but conservationists agree sustained gains will hinge on multiyear binational cooperation.



Yucatán road project draws legal challenge

Three Mexican environmental organizations have

filed a formal complaint denouncing the illegal construction of a 16-kilometer (10-mile) road through primary jungle in the Caribbean municipality of Tulum.

The complaint alleges the road project poses a threat to the underground aquifer that supplies fresh water to the entire Yucatán Peninsula—including the nearby Riviera Maya, one of Mexico's most important Caribbean tourism-resort regions. It was filed on June 23 by the Mexican Center for Environmental Rights (Cemda), Greenpeace México and Sélvame MX, a nonprofit dedicated to ecosystem protection in southern Mexico.

The project that prompted the suit is not new. Construction of the road was begun in 2025 by the Mexican Secretariat of National Defense (Sedena) as part of a bypass around Tulum. Following complaints by environmentalists, Mexico's Federal Attorney for Environmental Protection (Profepa) halted the work, finding the project lacked an authorized environmental impact assessment.

In their recently filed suit, the three green groups allege Sedena has quietly resumed construction along a modified route that activists claim is designed to open jungle land to real estate development.

"This road is a vector of mass destruction," says José Urbina, representative of Sélvame MX and a well-known cave diver. "It is not for the people. It is a 16-kilometer scar cut through virgin jungle with the sole purpose of fueling real estate speculation, enabling land invasions and forcing disorderly urban development onto the aquifer."

Citing evidence presented in their complaint, the three plaintiff organizations say the road is being built over the Sac Actun underwater cave system, one of the two longest flooded cave systems in the

world. They allege the road also would run alongside the Holbox Fault, a geological fracture that serves as the principal hydrogeological corridor for the Yucatán Peninsula.

The construction was authorized by Mexico's Secretariat of Environment and Natural Resources (Semarnat) under the terms of an agreement the agency reached with local communities. The three organizations say the affected area has no agricultural activity or human settlements that would justify construction of a road.

Scientists and activists warn that heavy machinery in the area's sensitive karst zone poses three major risks.

One is collapse and subsidence of the thin limestone rock that covers the underground network of cenotes and caverns. Another is interruption of underground fresh-water flows that run naturally toward the ocean. And a third is direct contamination of the freshwater supply through filtration of fuel and construction waste into the aquifer.

According to Cemda, road construction threatens the habitat of up to 78 endangered species, among them the Mexican spider monkey (*Ateles geoffroyi vellerosus*) and Baird's tapir (*Tapirus bairdii*).

The road construction also violates multiple federal environmental laws, the organization alleges, including land-use regulations in the Cancún-Tulum corridor.

The three environmental organizations are demanding an immediate halt to all clearing and construction work. In a statement issued jointly, they warned: "The jungle and the aquifer know no political borders or communal land agreements. If Sac Actun collapses, life in the Caribbean collapses with it."

Follow-up: Estrella Castillo, Sélvame MX press contact, Mexico City, Mexico, ecastillo@selvame.org.

Q&A

Colombian Goldman awardee works to spare her region from fracking

In 2019, EcoPetrol, Colombia's state-controlled oil company, announced a pair of projects to pilot fracking—the extraction of oil and natural gas through hydraulic fracturing. Both were slated to occur in the northeastern Colombian municipality of Puerto Wilches, which lies on the middle course of the Magdalena River—known as the Middle Magdalena region. Yuvelis Morales Blanco, then an environmental-engineering student and a Puerto Wilches native, joined the Colombia Free from Fracking Alliance, a grassroots environmental group, and became one of its key leaders. She went door-to-door, speaking to neighbors, and eventually to politicians, about the dangers of fracking, and at times participated in acts of civil disobedience to oppose the project. Colombian President Gustavo Petro canceled the fracking pilots after taking office in 2022, but he leaves office on Aug. 7. His successor will be right-wing President-elect Abelardo de la Espriella, who narrowly defeated the candidate endorsed by Petro, Iván Cepeda. On April 20, 2026, Morales, now 25, won the Goldman Environmental Prize for her efforts to spotlight fracking risks. She spoke recently with EcoAméricas correspondent Christina Noriega.



Yuvelis Morales Blanco

Your hometown of Puerto Wilches, a fishing community on the Magdalena River, is located in the heart of Colombia's oil-producing region, with the country's largest oil refinery just 30 minutes away by boat. You say oil spills have contaminated drinking water and caused fish die-offs. Are these a common occurrence?

Oil spills happen frequently. I always say that the country measures wealth in terms of barrels of oil produced while we measure poverty in terms of how many rivers and tributaries are contaminated and turned into environmental disasters. Colombia's state oil company [EcoPetrol] refers to crude oil leaks and spills as "operational events." They reduce them to something routine, as if it were simply the consequence of an operation that will continue as long as extraction continues. And this immediately forces local communities into a conflict because they are unable to drink water. Can you imagine living in a region with as much water as ours and still not being able to drink water? That is what life in the Middle Magdalena region has become: wondering whether an "operational event" has occurred. And when it does, the industry does not respond in time or doesn't respond at all and minimizes what for us is the total destruction of our ways of life, our access to water, our right to a healthy environment, and our ability to remain in our territory.

Why did you get involved in opposing EcoPetrol's fracking pilot projects, and why do you believe fracking represents a threat to the community and to the environment?

We began fighting against fracking in the Middle Magdalena region because it is tremendously unjust that this region—a region that has given so much to this country, whether willingly or not—is being promised nothing for the future except a return to its past. Every day, people try to convince this region that the future is still fossil fuel extraction, even though after more than a century, this industry has not truly contributed to the region's development. This region has extremely high levels of poverty. There are children and youth subjected to violence every day. The murders of social and environmental leaders continue to be

treated as something normal in a region that is supposedly being promised a dignified life. That is why talking about fracking in our region is so contradictory and so deeply unjust. This region deserves to be at the forefront of a truly just and territorially rooted energy transition, because this region deserves and needs to live in peace.

What has it been like to defend the environment in Colombia, one of the most dangerous countries in the world for environmental defenders?

It has been extremely difficult in Colombia. I am a young woman—even younger when all of this began—and a Black woman from a region that has been historically subjected to violence. [It's a region] that has a significant presence of armed groups and an oil industry that shapes public opinion and social dynamics in many ways. I faced threats very early on. I experienced intimidation, stigmatization, and displacement. I had to leave the country and go to France. They forced me out—they almost killed me. I talk

about that now more lightly than I used to, thanks to therapy. But I will never stop acknowledging that in Colombia, speaking out in defense of life can cost you your own.

In the Middle Magdalena region, there are people who have been harmed by the oil industry and there are people whose livelihoods depend on that industry. What does a just energy transition look like for communities in a region like the Middle Magdalena?

In this transition, no one can be left behind, including workers in the industry. We talk about job retraining, the right to work, the right to remain in our territories, and access to justice. We always talk about a just and territorially rooted energy transition because the territories themselves have to be part of the process. We are people who live in territories that have been historically exploited, but we are also people who need and deserve an energy transition that includes us—so that we are not once again turned into a sacrifice zone for the wellbeing of a nation that prefers to look the other way while its people are being massacred.

Abelardo de la Espriella won the presidential election after promising to resume fracking pilot projects. He argues that they are necessary to guarantee Colombia's energy security as domestic oil and gas reserves decline. How do you respond to his policy proposal?

If the true interest of this country is to achieve energy security, then fracking should never be considered an option or a solution. On the contrary, it means condemning children and youth to continue living in an era that is coming to end and that is very likely going to end with us. Today, more than ever, we need to talk about—and bring about—a just energy transition. We need to be truly prepared so that the Global South can offer the world real energy security and efficient energy alternatives, not fracking. Today, people are conveniently claiming that "sustainable fracking" is possible because there are biodegradable chemicals [that can replace harmful ones used in the process]. Communities from the southern United States to Mexico to Argentina's Vaca Muerta are showing us that fracking has never been the solution. On the contrary, they have been condemned by the imposition of a fossil-fuel model that is destined to become obsolete.