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Water analysis raising red flags on 'Riviera Maya'

Mexico City

A new study of pollutants in the groundwater along the eastern coast of the Yucatán Peninsula shows how breakneck tourism development is depositing new contaminants in the region's fragile coastal environment.

The Riviera Maya, as the tourist area south of Cancún is known here, is one of Mexico's fastest-growing regions. As developers raze lowland jungle to make way for resorts and golf courses, Mexicans are arriving in search of work, further intensifying environmental pressures.

The study, published in the April issue of the international journal Environmental Pollution, finds evidence that contaminants from household wastewater, golf course runoff and other sources are seeping into the groundwater through the peninsula's porous limestone.

Although Mexico's National Water Commission measures bacteria, organic pollutants and heavy metals in drinking water sources, the new study is the first to look at pesticides and what are known as "emerging pollutants," such as pharmaceuticals and chemical compounds present in soaps and shampoos.

What the study concluded is that these pollutants are reaching the network of underground rivers and springs that form the peninsula's aquifer along the eastern coast and flow into the Caribbean Sea. There, the contaminants add yet another threat to the already-stressed Mesoamerican Barrier Reef, the 1,200-kilometer

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A big win—and unknowns—for Chevron's accusers

Bogotá, Colombia

Immediately after an Ecuadorian court this month handed down one of the largest environmental awards in history, ordering Chevron to pay US$9.5 billion in connection with Amazon oilfield pollution, the questions arose. What impact will the ruling have? Will the plaintiffs actually be able to collect?

The Feb. 14 court ruling, issued in the ramshackle oil town of Lago Agrio, clearly marks a major milestone in the 17-year-old case and, more broadly, in litigation concerning the conduct of multinational oil companies in the developing world. Green advocates say that even if the plaintiffs never receive a dime, the blow to Chevron's reputation and the tens of millions of dollars the company has paid to fight the suit would make oil corporations think twice about cutting corners in developing countries.

"This decision sends a clear and unmistakable signal that there is no impunity for oil companies when they contaminate the environment and harm people's health," says Astrid Puentes, co-director of the nonprofit Interamerican Association for Environmental Defense (Aida). "It affects Chevron's image, will stir concerns with stockholders

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Advocates for indigenous plaintiffs savor victory (AP Photo by Dolores Ochoa)

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Around the Region

Under fire, Peruvian officials modify development decrees

After a month of protests by environmental and other groups, the Peruvian government has backtracked slightly on two decrees issued by the executive branch in mid-January to speed up major infrastructure work.

The so-called urgent decrees listed a series of infrastructure projects that would not need environmental certification before final concessions could be granted, although environmental impact studies would have to be approved before construction could begin. The decrees bypassed Congress, which had turned down similar legislation in November 2010.

On Feb. 17, after a meeting with presidents of the regions for which the projects were slated, government officials announced that the article eliminating approval of environmental studies as a requirement for granting temporary concessions would be struck from the decree, although other fast-track mechanisms for the projects would remain in place.

The projects covered by the decrees include electricity transmission lines, gas pipelines, port facilities, highways and a tunnel through the Andes, all specified by name. A few, however, are generic, including "new hydroelectric plants."

Environmentalists fear the decrees give a green light to major hydroelectric projects proposed for the upper Amazon watershed, including the controversial Inambari dam. (See "Peru-Brazil dam plans power Amazon debate"—EcoAméricas, Feb. '10.)

Opponents claim the measures are illegal, because the Peruvian Constitution specifies that urgent decrees can only cover economic and financial matters, a provision Peru's Constitutional Tribunal has interpreted strictly. They also argue that urgent decrees are meant for exceptional cases, not routine development projects.

Environmentalists have criticized Environment Minister Antonio Brack for supporting the decrees. Brack, who says Peru must cut red tape for development projects, notes that a similar decree, issued in 2009, drew no criticism, and that the new ones merely expand the list of fast-tracked projects. He points out that all environmental studies would still have to be approved before construction could begin.

Mariano Castro, a lawyer with the Peruvian Environmental Law Society (Spda), acknowledges that the 2009 decree had gone unremarked, but argues this does not justify the two new measures. He says granting concessions before environmental studies are approved could make construction of controversial projects a fait accompli.

Castro asserts that the decrees further undermine an already weak environmental certification system marked by flawed impact studies, inadequate oversight and conflicts of interest, with the same agencies responsible for promoting development projects and approving environmental studies.

The Ombudsman's Office, civil society organizations, legislators, presidential candidates, Catholic bishops, a right-leaning newspaper and even a business group had joined in opposing the new decrees.

"The environmental impact study could become a mere administrative formality, which is unacceptable," the Ombudsman's Office said.

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Study cites cross-border 'leakage' in reforestation

In Latin America, reforestation figures prominently as a response to global warming. The region hosts dozens of projects being developed under the initiative known as Reducing Emissions from Deforestation and Degradation (Redd), in which developing-world forest protection is to be financed through the sale of carbon credits to polluters in industrialized nations.

But a study in the U.S.-based Proceedings of the National Academy of Sciences emphasizes that nationally directed reforestation and conservation initiatives are not necessarily panaceas to the problem of global forest loss. In fact, reforestation in one nation often leads to deforestation in another through a process known as "leakage."

The study, by researchers from the University of Louvain in Belgium and the U.S. universities Stanford and Rutgers, has significant implications for internationally backed environmental schemes, including Redd.

"Most of the discussion of leakage around Redd assumes that it happens within a country, when it can in fact happen across borders," says Eric Lambin, a professor of environmental earth science at Stanford University and one of the study's authors.

Entitled "Forest transitions, trade and the global displacement of land use," the study analyzes the relationship between reforestation in individual countries and the

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Amid unrest, Panama moves to spur mining

Bogotá, Colomiba

Amid rioting at the University of Panama and skirmishes between indigenous people and police, Panama's National Assembly this month passed legislation intended to attract foreign investment to the mining sector and spur the development of two of the world's largest open-pit copper mines.

The 42-15 vote, held Feb. 10, overturns a 1963 ban on mining investment involving foreign governments and more than doubles mining royalties to 5%. Supporters portray the move as a huge boost for Panama's economy, saying it will lead to hundreds of millions of dollars of Korean and Singaporean investment and make mining Panama's second largest income earner after the Panama Canal.

Of particular interest are Cerro Colorado, a mine that would tap an estimated 25 billion pounds of copper in the western state of Chiriquí, and Cobre Panama, a north-central Panama copper mine of 20 billion pounds.

The sites are thought to hold among the world's largest copper deposits, a point supporters emphasize in touting potential benefits. "What we're trying to do is develop regions, create jobs and reduce poverty," says National Assembly leader José Muñoz of President Ricardo Martinelli's Democratic Change Party.

Clashes on eve of vote

But fears of the harm mining might do to environmental and cultural resources sparked mass protests in the days before the final vote. Riot police clashed with rock-and-bottle wielding students at the University of Panama and fired rubber bullets and tear gas at thousands of Ngöbé and Bugle indigenous people blocking the Pan-American highway near Cerro Colorado. Dozens of people were arrested.

The Ngöbé-Bugle, whose autonomous territory, or comarca, overlaps with Cerro Colorado, say the mine would displace thousands of indigenous people and contaminate rivers, farms and forests. "They've approved with great fanfare a law which will give away Panamanian territory and the Ngöbé-Bugle comarca to foreign companies and foreign governments," says Irene Gallego, an opposition parliamentarian from the Ngöbé-Bugle territory.

The tug-of-war over the future of mining in Panama comes as the pro-business government of President Martinelli attempts to attract the foreign investment for open-pit copper and gold mines aimed at weaning Panama from its dependence on services and trade and into the ranks of the world's top mining powers.

More than 40% of the national territory already has been leased or is being considered for mining concessions. The government says the treasury can expect to earn tens of billions of dollars in royalties and taxes from mining in coming decades. But environmentalists warn of the risks of toxic acids and heavy metals entering soils and rivers from open-pit projects. A June 2010 survey by the Central American polling firm Unimer shows that 56% of Panamanians oppose the mining expansion.

"These projects have enormous social and environmental impacts, but are being undertaken without first asking the country whether it's really interested," says Félix Wing, executive director of the nonprofit Environmental Advocacy Center (Ciam) in Panama City.

Cobre Panama, which will begin construction in 2012, highlights the issues at stake. The US$5 billion project, sponsored by Canada's Inmet Mining with a proposed US$500 million investment from Singapore's state-owned Temasek Holdings, would boost mining's share of GDP from a current 1.5% to over 7% and create 7,000 temporary and permanent jobs.

Woodland fragmentation feared

Environmentalists assert the project will destroy several thousand hectares of tropical forest in the heart of the Mesoamerican Biological Corridor, a conservation area established in 1998 by Central American countries and Mexico. The resulting forest fragmentation, they say, will not only impede the dispersion of seeds and the transit of felines and birds, but harm the fresh water supply as well.

"High rainfall in most parts of the Mesoamerican Biological Corridor fosters great risks to the environment in open pit mining operations," declared the International Union for Conservation of Nature (IUCN) in a 2008 resolution, which warned of the dangers of heavy erosion and sedimentation. Acid drainage from the mines, the organization wrote, "constitutes a threat to environmental health from the pollution of water and soils."

Liborio Miranda, a Ngöbé-Bugle leader, says he has seen the destruction from mining in the Ngöbé-Bugle comarca, where some 170,000 indigenous people live from hunting, fishing, subsistence agriculture and organic-coffee production.

Exploration for copper was carried out in the area in the 1970s and 90s by different Panamanian and foreign companies and then abandoned because of low copper prices. Even so, the environmental effects were severe, Miranda says.

"We are not going to permit either exploration or exploitation [of minerals] in our territory," says Miranda. "The government doesn't want to listen to us, they want rebellion."

–Steven Ambrus

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Belo Monte dam one step closer to reality

Rio de Janeiro, Brazil

Though they filed an 11th-hour injunction request late last month to halt the project, federal prosecutors in Brazil say they face a "very uphill fight" to block construction of the mammoth R$19.4 billion (US$11.6 billion), 11,233-megawatt Belo Monte dam in the eastern Amazon region.

If Belo Monte is completed as expected in 2015 or 2016, the hydropower complex on the Xingú River will rank third in installed capacity worldwide behind China's 22,000-megawatt Three Gorges Dam and Brazil's 14,600-megawatt Itaipú Dam, according to Brazil's Mines and Energy Ministry.

Many environmental advocates, who have fought the project for years on grounds it will cause substantial ecological damage in the vital rainforest region, acknowledge that government pressure to get Belo Monte up and running is likely to prevail.

"Belo Monte is a 'fait accompli' because the government, supported by appeals court judges in Brasília, is not going to allow anything to get in the way of Brazil's biggest future source of hydropower," says Peter May, associate director of Friends of the Earth, Brazilian Amazon. "Also, public and indigenous-tribe opposition to Belo Monte is not very strong, especially since the government considerably reduced the size of its reservoir."

Preliminary license granted

Prompting such comment was a decision last month by Ibama, the regulatory arm of Brazil's Environment Ministry, to grant a preliminary construction license for the project to NESA, a consortium headed by the federal power company Eletrobrás. The license allows the consortium to undertake site preparation, mainly by opening access roads, clearing 238 hectares (588 acres) of rainforest and building workers' quarters. A definitive construction license is required before work on other phases of the project can be done.

Federal prosecutors in the eastern Amazon state of Pará, where the dam will be built, filed last month's injunction request on Jan. 27, one day after Ibama granted the preliminary construction license. They allege the preliminary license, a fast-track permit, should be annulled because NESA has not met 40 conditions to mitigate the dam's social and environmental impacts. Compliance with those conditions is required in order for the consortium to get a definitive license from Ibama allowing all phases of construction to occur.

In their request, prosecutors also raise a more fundamental question, alleging "there does not exist, under Brazilian law, a preliminary installation license, one that allows initial work on a project with such delicate regional or national impacts."

Ibama plans to appeal any court injunction that annuls its license. In a statement issued late last month, the agency argued: "there has been gradual compliance with the conditions needed for this stage of the licensing process, such as the start of installing sewage systems, and reforming schools and hospitals" in the nearby town of Altamira.

Ibama also points out that earlier litigation involving its ability to issue a preliminary construction license, concerning the 3,300-megawatt Jirau dam in the western Amazon, was resolved in the government's favor. (See "Fight in Brazil over re-siting of Amazon dam"—EcoAméricas, Dec. '08.)

Proponents cite economy

The Pará state federal prosecutor who filed the latest injunction against Belo Monte, Ubiratan Cazetta, suggests economic-development arguments for dam construction carry greater weight the higher up in the court system dam litigation goes. Says Cazetta: "Brasília-based federal appellate judges, who are much closer geographically and politically to the government than Pará state federal judges, support the government's contention that Belo Monte and other Amazon dams are needed for economic growth and without them the nation could face future, nationwide power blackouts."

Environmentalists charge political pressure to approve Belo Monte was also intense within the government. They speculate that former Ibama President Abelardo Bayma Azevedo's resignation 15 days before his agency issued the Belo Monte preliminary construction license was due to his refusal to bend to that pressure. Azevedo has not commented publicly on his reasons for stepping down.

Opposition to the two-decade-old Belo Monte plans, particularly from indigenous peoples, forced the government in 1994 to downscale the planned reservoir from the original 472 square miles (1,222 sq kms) of rainforest to the current 199 square miles (515 sq kms).

But environmentalists argue the scaled down plan will still cause extensive ecological damage. They point in particular to the planned diversion of 80% of the Xingu River's water toward a power station and away from a 62-mile (100-kilometer) bend in the river. Opponents also warn the project will touch off mass migration to the region, with growing numbers of illegal settlers accelerating deforestation and overwhelming public services in the nearby town of Altamira.

–Michael Kepp

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Nature not only contributor to Rio disaster

Rio de Janeiro, Brazil

After a month's worth of rain poured on Rio de Janeiro state's região serrana, or hill region, in a 24-hour period, triggering mudslides and floods that killed more than 900 people, residents asked: Was this disaster purely natural or in part manmade? The answer, of course, is that the January calamity was a particularly powerful combination of the two.

Rounds of Brazilian politicians were quick to point the finger at local governments. In the six affected municipalities, illegal settlements have been allowed to sprout up on encostas, the jagged hills in Rio state that have long been home to favela shantytowns—so much so that the word morro, or hill, is a common synonym here for "slum."

"[We] saw areas in which illegal occupation [of vulnerable hillsides and riverbanks] damaged the health and lives of people," President Dilma Rousseff said as she visited the areas hit hardest by mudslides immediately following the Jan. 12 floods. "When there aren't housing policies, where are people who earn no more than twice the minimum wage going to live?"

But this year's floods surprised Brazilians by taking lives in both the favelas as well as in the supposedly safer higher-income constructions on flatter ground due to the sheer intensity of rainfall. "It looks like these [extreme weather] events are becoming more frequent, every summer," says climatologist José Marengo with Brazil's National Institute for Space Research, which provides weather forecasts.

Taken together with Australia's floods and the extraordinarily cold U.S. winter, Marengo adds, the Brazilian deluge prompts questions about extreme weather becoming a new normal. An article he co-authored last year in the journal Climatic Change describes "systematic increases of very heavy precipitation" since the 1950s in southeastern South America, in addition to warmer summers and winters. Marengo and other experts also cite the lack of an obligatory evacuation plan to activate when heavy rain is forecast.

"It was not just a matter of the rain, it was a collection of factors that allowed the rain to do this," says Mario Mantovani, director of public policy for the non-governmental organization SOS Mata Atlântica, which promotes forest conservation.

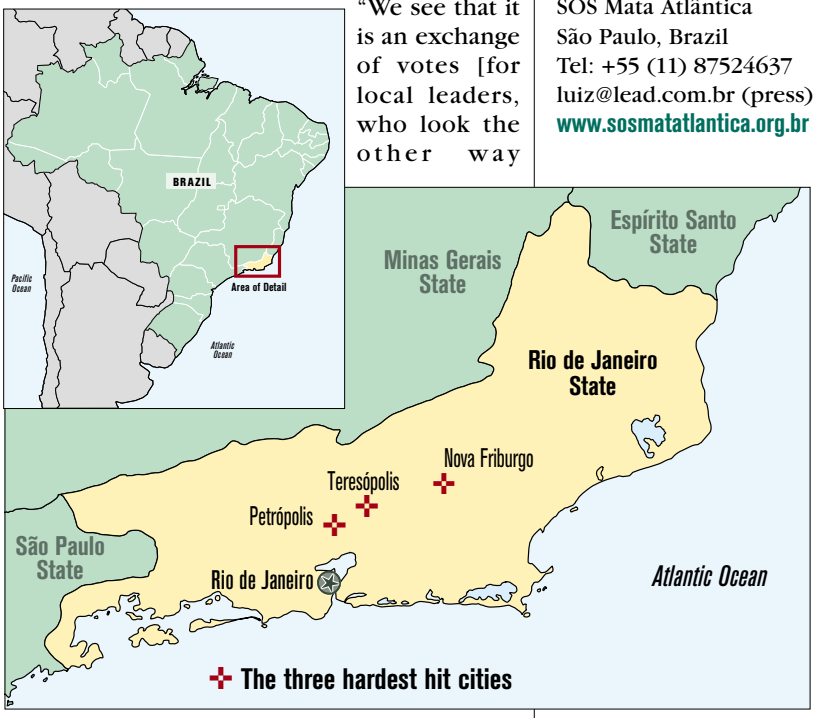
High urbanization rates in the craggy hill communities a few hours from the city of Rio de Janeiro trigger erosion, which, in turn, precipitates mudslides, Mantovani adds. One of the worst-hit cities, Teresópolis, for example, grew more than 18% in the past decade, adding 25,000 new residents.

"This deforestation does not go back so far," he says. "It is recent" in the região serrana.

Cities also haven't preoccupied themselves with the dangers of construction near river banks, says Sergio Barros, a researcher with Fluminense Federal University's network for environment and sustainable development.

Barros says cities need to enforce the removal of settlements from areas designated as high-risk, but that doing so with community involvement throughout the year rather than immediately following annual summer floods would make the process easier to swallow for residents on the encostas.

"They're very long processes," he says. "We see that it is an exchange of votes [for local leaders, who look the other way when unsafe homes are built] for a piece of land."



Julio Wasserman, also with the environment and sustainable development network, promotes a forceful evacuation plan which minimizes—though realistically can't exclude—loss of human life. Wasserman compares Rio de Janeiro state to California, which recognizes it has earthquake risks. No one expects residents to give up living in California, but the state has emergency plans, he adds.

"We talk, talk, talk, and nothing is done," he says, complaining that the government's response to floods last April that left more than 200 missing in his city, Niterói, was to reinforce a small number of high-risk homes with concrete rather than relocate residents. "The money is going to go into big projects and a year from now, we'll start over again."

–Taylor Barnes

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Centerpiece

Natura's green practices not just cosmetic

Rio de Janeiro, Brazil

World cosmetics makers have drawn criticism over the years for allegedly using harmful ingredients and testing their products on animals. But over the past two decades, some in the industry have tried to improve their image by offering products featuring everything from recycled packaging to ingredients that are natural, allergen-screened, non-animal-tested or otherwise more appealing.

A Brazilian company, Natura Cosméticos, is having notable success on that score, distinguishing itself from domestic rivals and from many cosmetics companies abroad. Its initiatives range from waste reduction and greenhouse-gas cuts to the incorporation of profit-sharing agreements with rainforest communities supplying the company with sustainably harvested natural ingredients. Analysts say Natura's eco-friendly practices have helped it become Brazil's largest cosmetics company and the world's 15th biggest, with R$4.24 billion (US$2.16 billion) in sales in 2009, the last year for which full-year sales figures are available.

The company took a key step in 2000, when it launched its Ekos line of bath, body, hair and fragrance products. It has signed contracts with farmers and 26 communities zoned for eco-friendly extraction of forest products to ensure the line's numerous natural ingredients are sustainably harvested.

Natura has halted animal testing and in some of its products replaced animal- and mineral-based oils with oils from vegetable fat, a renewable source. It introduced refillable containers to the Brazilian cosmetics sector, cutting plastic consumption, and has become the first Brazilian cosmetics company to use so-called green polyethylene, a renewable packaging plastic made from sugarcane-based ethanol.

The four-decade-old company also has reduced water and energy consumption, and undertaken a three-year program to cut its carbon footprint 33% by the end of this year. It was the first and so far remains the only developing-nation company chosen for the World Wide Fund for Nature (WWF) Climate Savers program, in which corporations partner with WWF to meet stringent greenhouse-gas reduction targets. And Natura was the first Brazilian company ranked by the Global Reporting Initiative (GRI), which produces one of the world's best-known standards for sustainability reporting.

Not all of Natura's publicity has been good. In November, Ibama, the enforcement arm of Brazil's Environment Ministry, issued 100 fines totaling R$130 million (US$75 million) on numerous cosmetics, pharmaceutical and bio-prospecting firms—including an R$21 million (US$12.2 million) levy against Natura. Authorities say most violations concerned companies' use of traditional knowledge and local biodiversity without gaining adequate government approval. Natura has appealed the fine.

Still, green advocates here and abroad say that overall, Natura has set an impressive example, showing that the concept of corporate environmental responsibility is by no means confined to forward-looking companies based in the developed world.

"[O]n a scale of one to ten, I'd rank Natura a 'ten' in terms of its environmental sustainability credentials, not only among global cosmetic companies, but among industrial firms in general," says Carlos Rittl, the climate-change program coordinator in Brazil for WWF, which in 2009 had independent auditors examine Natura's sustainability record. "Natura has been very eco-conscious for several decades and, in Brazil, has become a corporate pioneer in terms of sustainability."

Like Mary Kay and Avon, Natura has subsisted since its founding in 1969 on direct sales rather than on retail-store business, though it does have a retail store in Paris. Mainly through its Ekos line, one of its top sellers, Natura showcases its use of natural products and sustainable methods of producing them.

The list of those natural ingredients is long. For instance, Ekos face and body creams, body oils and soaps are made with oils from cacao, cupuaçu (Theobroma grandiflorum), buriti palm (Mauritia flexuosa) and babaçu palm (Orbignya phalerata) seeds. Oils from maracujá, or passion-fruit (Passiflora edulis) seeds are used as an exfoliant in Ekos body creams, oils, shampoos, hair conditioners and deodorants. And oils from passion-fruit leaves are used as moisturizers in two other Natura main lines—Chronos skin creams and the lipsticks in its Una makeup line.

Oil from sustainably harvested cupuaçu (above) is one of a number of natural ingredients Natura uses in its Ekos line. The company contracts with farmers and communities committed to eco-friendly extraction of forest products.

Oils extracted from leaves of the pitanga tree (Eugenia uniflora) underlie exfoliants in Ekos hand soaps, while oils from the yerba mate plant (Ilex paraguariensis) are the basis for an astringent, or skin constrictor, aimed at making Ekos body soaps and shampoos refreshing. And murumuru palm (Astrocaryum murumuru) oils serve as moisturizers in soaps, shampoos and conditioners. Other sources of the natural oils Natura uses in its Ekos products include the andiroba tree (Carapa guianensis), the acaí palm (Euterpe oleracea), the breu-branco tree (Protium pallidum) and the root of the priprioca plant (Cyperus articulatus).

Natura's main source for such ingredients are so-called

extractivist communities—local communities or cooperatives that sustainably harvest and sell products from state and federal extractive reserves set aside for such activity. Securing the ingredients involves a great deal more than negotiating supply contracts.

"Natura consultants and technicians visit these suppliers to monitor whether their extraction methods are complying with the supply contracts we have with them," says Sergio Talocchi, Natura's manager of relations with supplier communities. "For example, if an Amazon extractivist community harvests too many [Brazil nuts], the trees [Bertholletia excels] won't reproduce sufficiently to guarantee their long-term survival, and forest animals won't have a food stock to rely on."

Natura uses direct sales rather than shops to reach consumers. But the company made an exception in 2005, when it opened its first store (below) in Paris to begin testing the European market. The store only sells Natura's environmentally-oriented Ekos line.

Two of these suppliers—Comaru, a cooperative that collects Brazil nuts from the forests of northeastern Amapá state, and Ervateira Putinguense, a cooperative that harvests yerba mate leaves in southern Rio Grande do Sul state—have been certified since 2004 and 2003, respectively, as complying with the sustainable-forestry standards of the Forest Stewardship Council (FSC). A third natural-products supplier, one of Natura's biggest, is RECA, a cooperative of farmers in the western Amazon state of Rondônia that provides the company with oils from Brazil nuts, cupuaçu seeds and andiroba resin. RECA's 300 farmers don't rely on harvests from the natural forest; they grow Brazil nut, cupuaçu and andiroba trees on forest plantations of up to 15 hectares (37 acres) in size.

RECA has been certified since 2005 to be in compliance with the sustainable-agriculture standards of the New York-based Rainforest Alliance. Like that of the FSC, the Rainforest Alliance certification aims to ensure sustainable practices are used; but unlike the FSC's green seal, the Rainforest Alliance's applies to sustainable plantation-forestry operations, not to harvesting in natural forests. The management plans of these suppliers must pass muster with Imaflora, a third-party auditor for FSC and Rainforest Alliance. Imaflora visits the three suppliers at least once a year to make sure they are following certification norms. In a prepared statement, Natura said it doesn't require all of its 26 suppliers to be FSC or Rainforest-Alliance certified because "those suppliers are responsible for choosing the type of certification and institution that best suits their needs."

Patricia Gomes, coordinator of non-wood-product FSC certification for Imaflora, speculates another reason might be that many of the other suppliers find such certification costly and time-consuming. "Natura is constantly innovating and experimenting with new forest ingredients…and new suppliers," Gomes says. "Given this and the small quantities of these ingredients that suppliers sell to Natura, it doesn't make sense for most suppliers to invest the time and money to get FSC certification. Natura is the only cosmetics company in Brazil that is trying to be sustainable and was the first company in Brazil to sign benefit-sharing contracts with communities that sustainably extract active natural ingredients."

These benefit-sharing contracts allow Natura to use sustainably harvested genetic resources, such as oils and leaves, as well as the traditional knowledge associated with them. In return, the communities receive a percentage of the net profits generated by the finished products as well as income from sales of the natural ingredients to Natura.

Benefit-sharing contracts were made obligatory under a 2001 provisional measure issued by Brazil's president at the time, Luiz Inácio Lula da Silva, and implemented under a 2005 presidential decree signed by Lula. But both RECA and Comaru say Natura is the only buyer of natural products to sign such contracts with them. "RECA farmers sell the same products they sell Natura to other small cosmetic and pharmaceutical companies who refuse to sign benefit-sharing contracts, which means we make bigger profit margins by selling to Natura," says Hamilton Condack, RECA's sales manager. "What's more, Natura has provided donations to build an elementary school for children of producers and to train members of our cooperative in accident prevention. Natura also paid part of the cost of getting Rainforest Alliance certification."

Agreements of the type Natura has struck with natural-ingredient suppliers are seen by experts as a promising means of creating economic incentives for forest conservation. That said, the company's incentives are not large. In 2009, Natura paid its 26 supplier communities, which represent over 2,000 families, a total of just R$5.5 million (US$3.2 million) for natural ingredients. Half of this amount corresponded to income from Natura's purchase of natural ingredients, while 20% was profit-sharing and the remaining 30% consisted of Natura donations to the communities. The amount represents a mere sliver of the company's R$4.24 bil-

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lion in sales that year.

Still, Marcos Vaz, Natura's sustainability director, argues the R$5.5 million outlay reflects that Natura uses relatively small quantities of natural ingredients—which, he adds, do not involve much value-added processing. Noemi Porro, an anthropologist involved on an unpaid basis in negotiations in 2009 between Natura and an extractivist community in Maranhão state, says that "both Natura and the extractivist community were satisfied with the benefit-sharing deal even though it was complex."

Eliana Torelly of the Brazilian federal prosecutor's office, a watchdog agency, witnessed the talks between Natura and the community in Maranhão. "[T]he negotiations were tough because they involved peoples from two different worlds," she says. "But in the end, Natura paid the extractivist community what [the community] wanted in benefit-sharing amounts on condition the money would go into a fund used by the community for projects not harmful to the environment."

Natura refills come in 'green polyethylene' bottles made from sugarcane ethanol.

Some Natura contracts call for conservation of specific stretches of forest. In 2010 Natura signed what it terms its "biggest sustainability project"—an agreement with an extractivist community in the Amazon state of Pará that provides for protection of 100 square kilometers (38.6 square miles) of forest. There, the community collects murumuru palm seeds.

Though spending on such initiatives is not large relative to Natura's size, the company has made extensive use of natural ingredients as a marketing tool by showcasing its Ekos line not only in Brazil, but also abroad. In 2005, Natura spent US$20 million to open its first retail store, in Paris. The store only offers Ekos products and is intended as an initial testing ground for Natura products in the European market.

As it attempts to gain a foothold in Europe, Natura is emphasizing the Ekos line's socio-economic and environmental credentials. Says Natura's website for France: "We work closely with 26 Brazilian communities based on the principle of sustainable development to guarantee the sustainable management of natural resources, the equitable remuneration of our partners and viable economic development."

The opening of the Paris store comes as Natura tries to introduce its full range of product lines in other countries. With wholly owned subsidiaries in Peru, Chile, Argentina, Bolivia, Mexico, and Colombia, the company in 2009 began selling in Guatemala, Honduras and El Salvador through local distributors who also carry other beauty-product brands. And it plans to start making products in Mexico and Colombia this year. Overall, international sales made up 6.9% of Natura's business in 2009.

In Brazil and abroad, the company taps a pool of over 1 million independent sales consultants who, through client referrals and telemarketing, build online networks of consumers rather than going door-to-door as in the past.

Natura's green record nevertheless did take a public-relations hit when the company figured among the cosmetics, pharmaceutical and bioprospecting firms fined by Ibama for alleged biopiracy violations. The identities of the other companies are not publicly known. Penalized companies can remain anonymous, and Natura was the only one to announce it had been fined by the enforcement agency.

"Most fines we've issued are related to companies getting access to traditional knowledge and biodiversity of indigenous or traditional communities or to profits generated from such access without getting government approval," says Bruno Barbosa, Ibama's general inspection and monitoring coordinator. "They were in general not for more serious violations such as smuggling plant and animal species abroad for research or commercial reasons."

Authorities say the problem is rooted in uneven compliance with the profit-sharing rules approved on a provisional basis in 2001 and implemented by presidential decree four years later. Those requirements call for companies seeking to tap traditional knowledge and biodiversity to get approval from the Genetic Patrimony Management Council (CGEN), an inter-ministerial body.

"[C]ertain requirements of the provisional measure, some of which aren't easy to ascertain, and the red tape and inefficiencies within CGEN make it hard for companies like Natura to fully comply," says Braulio Dias, CGEN's president and the Environment Ministry's secretary for biodiversity and forests. "But this is not an excuse for not doing so. All that said, we need more companies like Natura in Brazil. It is a pioneer in benefit-sharing contracts and adding value to local plants to make cosmetics."

Says the WWF's Rittl: "[Natura] has reassured us that it is complying with the measure...The fine was likely caused by bureaucratic confusion about who is required to sign benefit-sharing contracts and how they must be worded."

–Michael Kepp

Yucatán groundwater
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(750-mile) reef that runs from Mexico to Honduras. (See "Latest reef report card lists failing grades"—EcoAméricas, Nov. '10.)

Although the study is a pilot project, lead author Chris Metcalfe, of Canada's Trent University, and his colleagues reach a blunt conclusion: Unless steps are taken to mitigate contamination of the water supply, "the tourism-based economy of the Maya Riviera region will not be sustainable over the medium to long term."

The six researchers, who are from Mexico, Canada and the United States, tested water samples they collected in flooded cave networks near Tulum and further north at Puerto Aventuras. Those are still fairly small towns, although Tulum's population is growing at a rate of 15-20% a year.

"We can be pretty certain that conditions are the same or worse in more developed areas like Cancún, where there is more population, more golf courses," says Gerardo Gold Bouchot, one of the researchers involved in the study.

The investigators found contaminants from medicines as well as from soaps and shampoos. They also detected caffeine, a by-product related to nicotine and, in a finding that earned their study considerable press coverage, cocaine.

Sewage considered source

Many of the compounds most likely come from sewage, since the human body excretes some of the chemicals ingested in it, says Gold, who is with the Center for Research and Advanced Studies, or Cinvestav, in Mérida.

Among the other contaminants were fungicides and herbicides commonly used to protect lawns as well as compounds that most likely came from highway runoff.

Such pollution pressures would seem sure to intensify. With a new airport planned for the Riviera Maya and local authorities anxious for more tourism investment, the region's population is expected to grow exponentially. But there is time to take corrective measures, says Gonzalo Merediz, executive director of Amigos de Sian Ka'an, a local green group collaborating with the researchers. "Yes, the study tells us that in urban areas there is a problem of contamination," he says. "It's a yellow light."

Merediz, whose organization originally was formed to promote protection of the Yucatán Peninsula's Sian Ka'an Biosphere Reserve, explains there is a large "buffer capacity" in such a large freshwater system. He adds: "In the long term we have to act, [but] neither the population nor tourism is at imminent risk."

Still, the Mesoamerican reef is already under severe threat from several causes, including global warming, increased sedimentation from deforestation and untreated and even treated sewage, Gold points out. The effects on the reef of new contaminants have not been studied, but Gold suggests what the impact of antibiotics and the antibacterial soap additive triclosan could be.

"Tons of that get into the environment every day and it is designed to kill bacteria," he says. "If you release tons of this compound into the sea, you are going to kill the good bacteria. In tropical countries, [the pollutants include] tons of medicine for amoebas. By killing marine bacteria, the sea's natural ability to degrade organic matter is disrupted."

The researchers proposed a number of actions to mitigate groundwater contamination, beginning with adequate wastewater treatment. But because the current treatment does not eliminate all these chemicals, "we need to fund research to increase the efficiency of these plants," Gold says.

Use of liners urged

The researchers also recommended ending the practice of injecting treated wastewater into the saltwater zone below the freshwater aquifer, to avoid the risk of contaminants mixing into the groundwater. Impermeable liners should be installed beneath golf courses and other grassy areas to prevent contaminants from leaching down, they wrote.

Officials at Mexico's National Water Commission (Conagua) welcomed the study, but pointed out that the concentrations of pollutants found were still very small and that more research is needed.

"This study is valuable," says José Luis Acosta Rodríguez, technical director for the Yucatán Peninsula Water Basin Agency, a regional unit of Conagua. "It puts an issue on the table which could represent a risk to health."

Following the investment of some US$125 million over the past five years in sewage systems and treatment, officials now estimate that 78% of wastewater is treated in the state of Quintana Roo, where Cancún and the Riviera Maya are.

Still, the official number does not take into account unplanned settlements, where migrants to the region simply jury-rig a shack and dig a septic tank. These informal villages, along with illegal hotel development, undermine hard-won zoning and development plans that civic groups have hammered out with authorities over the past two decades.

"You cannot avoid growth," says Merediz. "But you can control how you grow."

–Elisabeth Malkin

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Documents & Resources

The article "Contaminants in the coastal karst aquifer system along the Caribbean coast of the Yucatán Peninsula, Mexico" appeared in the April 2011 issue of Environmental Pollution (Vol. 159, Issue 4, Pages 991-997).

Chevron case
continued from page 1

and have a huge cost politically."

But analysts say that while Chevron is paying a public-relations price and running up big legal bills, it is unlikely to have to pay the damages. Pointing out that Chevron, a San Ramon, California-based company, no longer has a presence or assets in Ecuador, they question whether the 47 plaintiffs, representing some 30,000 indigenous people, will ever collect—even if Chevron loses its legal appeals.

And the oil giant does seem determined to appeal. In a statement, Chevron said it would seek to overturn the decision, which it calls "illegitimate," adding it "does not believe today's judgment is enforceable in any court that observes the rule of law."

Chevron is fighting a legal battle it inherited from Texaco when it acquired that company in 2001. The litigation began in 1993, when indigenous plaintiffs from the Ecuadorian Amazon filed a lawsuit targeting a Texaco subsidiary, Texaco Petroleum (Texpet). The plaintiffs charged that Texpet disposed of huge quantities of toxic oil-drilling waste on rainforest land from 1972 to 1992 while acting as managing partner of a consortium in which Ecuador's state oil company held a majority stake.

Health impacts alleged

Toxins, they claimed, flowed from waste pits into groundwater and rivers, damaging habitat and saddling indigenous rainforest dwellers with health problems ranging from spontaneous abortions to childhood leukemia. Plaintiffs argued that the damage could have been avoided if the production water had been pumped deep underground, a process called reinjection, and that to save money, Texaco did not use that disposal method. Chevron has countered that reinjection was not standard industry practice at the time.

In litigating the case in Lago Agrio, Chevron argued that Texpet was absolved of responsibility for the pollution by meeting the terms of remediation accords it signed with Ecuador after turning oilfield operations over to the state oil company, Petroecuador, in 1992. It also claimed plaintiffs' attorneys and an ostensibly independent court investigator colluded on a vastly inflated assessment of damages.

On Feb. 1, the company filed a racketeering complaint for extortion against the plaintiffs' attorneys in a New York federal court. A week later the court issued an order temporarily blocking enforcement in the United States of any decision against the company.

Analysts say Chevron's apparent determination to fight on means that plaintiffs face an uphill battle in collecting the money awarded to them by the Ecuadorian court. Appeals by Chevron, moving up through Ecuador's judiciary to its Constitutional Court, could take years, they say. And even if successful, the plaintiffs may then have to track Chevron's money in places where it operates and has assets, such as Brazil, Argentina, Venezuela and the United States, with no guarantee of success.

"This is a 17-year dispute that has been wandering around different courts and different legal processes, and I don't see any reason to think it will be over any time soon," says Dianne Saxe, a Canadian environmental lawyer and former senior counsel to Ontario's Ministry of the Environment. "If the judgment stands [as a $9 billion award], that's the sort of thing that scares investors, affects stock prices, and has to be disclosed in financial statements. It has a real impact on the company."

Awaiting industry's reaction

What impact the judgment will have on other oil companies doing business in Latin America remains to be seen. Dozens of new oil and gas concessions have cropped up in recent years in Latin America's most biodiverse and pristine areas, including the western Amazon and the Orinoco. And as multinational companies begin to explore and exploit those resources, Chevron's experience could influence how the industry behaves, analysts say.

Natalie Bridgeman Fields, an attorney representing the Achuar people of Peru in a suit against Occidental Petroleum, says the Chevron case had affected oil industry practices in Latin America well before the Feb. 14 ruling. "The way Chevron fought tooth-and-nail against a community that wanted its day in court and to see its rights restored has terribly damaged its image and suggested to other companies there are other models to follow," she says.

A December decision by the Ninth Circuit Court of Appeals in California ensures the case involving the Achuar and Occidental remains for now in the United States. (See "Peruvian oil-pollution lawsuit can be tried in United States"—EcoAméricas, Dec. '10.) But Bridgeman Fields says another case she is working on, involving two Peruvian indigenous groups and five alleged oil spills by the international company Maple Energy, is nearing settlement talks just a year since complaints were brought.

Some suggest that prevention also has improved. Says Gustavo Coronel, former board member of the state-owned oil company Petróleos de Venezuela (PDVSA): "Environmental concerns are much more important for the oil industry in Latin America and in most parts of the world than 30 or even 15 years ago."

–Steven Ambrus

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Around the Region
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international trade in wood and agricultural products between 1961 and 2007. It focuses on six developing countries—China, Chile, Costa Rica, El Salvador, India and Vietnam—all of which increased their forest cover during that period.

Forest recovery in all these countries but India meant boosting purchases of forest and agricultural products abroad. For every 100 acres reforested locally, 22 acres were felled in other countries—a figure that leapt to 52 acres from 2007-08 because of increasing globalization.

Costa Rica is presented as a classic case of the tradeoffs involved. Growing ecotourism, a system of payment for environmental services and the expansion of protected areas helped reverse what had been one of the world's highest deforestation rates in the 1970s and 1980s.

But because of those measures, Costa Rica increasingly imported paper and paperboard from the United States. Consequently, preservation and reforestation of tropical forests were being won partly at the expense of North America's temperate ones.

That is not to say that the reforestation efforts were in vain, the authors stress. Reforestation in most tropical countries studied resulted in net gains for forests globally. And the tropical forests in those lands held greater biodiversity and carbon sequestration than those in other areas.

But, says Lambin, the findings do indicate the importance of taking globalization into account in international environmental policy. "Any international deal to credit a country for reducing deforestation should integrate imports and exports of wood and agricultural products to make sure that deforestation is not being outsourced," he says.

Follow-up: Eric Lambin, Professor, School of Earth Sciences and Woods Institute, Stanford University, Palo Alto, California, +(650) 725-7427; correspond through co-author Patrick Meyfroidt, patrick@meyfroidt.uclouvain.be.

Belize outlaws bottom trawling

Belize has become the world's third nation after Venezuela and the Pacific island nation of Palau to completely ban the destructive practice of bottom trawling in its national waters.

The ban, encompassing the nation's territorial waters and the 200 nautical miles of its exclusive economic zone, comes after the United Nations Educational, Scientific and Cultural Organization (Unesco) warned it could remove the Belize Barrier Reef's World Heritage status if the government did not do more to protect the reef.

The ban, which took effect Jan. 1, involved the buying out of the country's last two trawlers—the result of many months of negotiation between the conservation group Oceana, government officials and regional fishing cooperatives.

Bottom trawling is a particularly destructive method of fishing that involves dragging nets along the ocean floor, resulting in large, indiscriminate bycatch of juvenile fish and non-target species as well as the devastation of fragile bottom habitat, including corals.

Conch and lobster, both of which require intact reef and ocean bottom habitats, are mainstays of the fishing industry, and will likely be the principle benefactors of the ban.

The move was hailed as a critical step towards conserving the barrier reef, which drives the country's fishery and tourism-based marine economy.

Melanie McField, a marine scientist who last year authored a report documenting the dire health of the Belize Reef and the increasingly detrimental effects of fishing methods such as bottom trawling, calls the decision a "good step," in eliminating such practices.

McField says that because trawlers are large and highly visible, the new law, unlike others that govern such practices as spearfishing, will be "easy to enforce." She warns, however, that given the trawling industry's small size and poor profitability, the ban was a relatively easy political move. She says tougher decisions still loom, such as safeguarding mangrove habitat in the face of unplanned tourism development, establishing better-protected marine reserves and drafting a comprehensive coastal-zone management plan.

Oceana says Belize's tourism industry, which accounts for 25% of the country's GDP, and the commercial fishing industry, which generates 12%, recognized the economic importance of preserving the reef for sustainable fishing as well as snorkeling, scuba diving and sport fishing.

Meanwhile, shrimp fishermen, who have seen their catches diminish by roughly half since 2004 and who face high fuel prices, saw benefit in allowing Oceana to spend $400,000 to buy out their last two trawlers and help them adopt more sustainable fishing activities using soft loans.

"After years of pressure from environmental organizations to convert to more sustainable activities, the shrimp fishermen came to see the bigger picture and what giving up bottom trawling would mean in terms of eliminating bycatch and increasing fish stocks," says Audrey Matura-Shepherd, vice president of Oceana's office in Belize and the principle negotiator of the prohibition. "The government then told us they were willing to pass legislation, which we drafted, that included a ban on all kinds of trawling, in all our waters, and with sufficiently harsh penalties."

Penalties for violators include sentences of up to two years in jail and possible confiscation of their vessels.

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Brazil implementing new waste-management law

Brazil is now implementing the only major environmental legislation to clear the country's Congress last year: a sweeping solid-waste management law.

An implementing decree for the law was signed in late December by outgoing Brazilian President Luiz Inácio Lula da Silva. Government and business must now begin work to comply with its provisions.

The law creates requirements for local, state and federal solid-waste management plans; hazardous-waste handling; recycling; development of new sanitary landfills; and controls to stop illegal dumping and burning of solid waste. (See "National waste bill nears passage in Brazil"—EcoAméricas, March '10).

It also requires sectoral recycling agreements among businesses that generate packaging or deal in specific goods, such as batteries, tires and fluorescent lights, that can pose health and environmental risks once discarded.

Follow-up: Full text of decree (No. 7,404) implementing the solid-waste management law, in Portuguese, at: www.planalto.gov.br/ccivil_03/_Ato2007-2010/2010/Decreto/D7404.htm

Q&A:

Official mulls lessons from Rio de Janeiro's fatal floods

Brazil's worst floods on record took at least 900 lives, with over 400 more still missing a month since the Jan. 12 deluge in the hilly region, or região serrana, of Rio de Janeiro state. The scale of the disaster, which primarily affected the cities of Nova Friburgo, Teresópolis and Petrópolis, stunned residents of a region well accustomed to lethal rains and landslides. Among those looking for lessons in the flooding and its impacts is Marilene Ramos, former environment secretary for Rio de Janeiro state and currently the president of the State Environmental Institute (INEA), a government-run technical advisory body for Rio de Janeiro state policy makers. Ramos, a civil engineer by training, identifies housing policies, land-use law enforcement, emergency-alert capability and risk management as key areas to be improved if Brazil is to prevent powerful rainstorms from exacting such a high price in the future. She spoke recently with EcoAméricas correspondent Taylor Barnes in Rio de Janeiro.

Marilene Ramos

How were this year's floods different from those of past years, and why did they take such a high toll?

Many people attribute it to the question of climate change. But these are rains that have a low probability of occurring each year, though the probability exists. The tragedy of the região serrana is the sum of a natural catastrophe, an exceptional rain that according to our monitoring systems in [Nova] Friburgo [the city with the highest death toll from the floods] amounted to 297 millimeters [over 11 inches] from Tuesday afternoon [Jan. 11] to Wednesday morning. So it's an absolutely exceptional rain. It's a rain that [could be expected to happen only every] 350 years. [We put] this natural phenomenon together with unregulated settlements, and also the lack of alternative housing, mainly for people of low income. Disorderly development is [caused] as much by those with means, the upper class, as by the poor class. But it is aggravated by the lack of alternative housing for the poor, who end up building on riverbanks and hillsides, which ought to be permanent conservation areas. I wouldn't say that if all the environmental laws were respected no one would die. That's not true. Many people could still die. [But] certainly, the number of victims would be reduced if environmental laws were respected.

What in particular aggravated the situation to take so many lives?

The movement of mass—soil, rock, vegetation—is similar in all the three municipalities affected. The intense rain, the already-saturated ground [since there had been rain beforehand]. In those regions, we have a geological formation [of] stony protruding rocks and [rocky, loose soil]. When really strong rain comes, it infiltrates this porous material. The weight of the water itself makes blocks of soil fall from the underlying rock and go down the hills from great heights, with enormous energy and a lot of water. All of this forms a great mass that goes down into the valleys as though it were an enormous avalanche, a machine of destruction. In all the valleys affected, [we see] mud about three meters high invading the first floor of houses.

Now comes the reconstruction phase. Is there a way to know which areas are at risk and which aren't as authorities decide which homes to demolish and which should stay?

Since we don't have a way to take everyone from the hillsides and river banks, the tendency is to focus on those situations where the risk is more imminent. Unfortunately, we have to live with a certain degree of risk. What is unacceptable is when people live in situations of imminent risk, where every summer any rain can hit [the home], be it by landslide or by flooding. To live more safely with a certain level of risk we are developing and have already seen implementation of alert systems that warn the population of the probability of extreme rains. So we need to improve this forecasting system. It's a question we had already identified, that was already the subject of a contract with the World Bank. It had already been foreseen since last year that we would acquire, for example, meteorological radars that would provide us with better forecasting. Today, we work with satellite images, which don't provide forecasts. We know there is going to be rain, but we don't know exactly at what time and in what volume. We need information that is much more precise. That's why we're installing two meteorological radars that, along with the radar the city government of Rio already installed for the metropolitan region, can cover the whole state. Our system is going to be integrated with the national [system]. Our forecast is that these [two new state] radars will be operating by next year. The federal government's plan [to build and launch a satellite capable of monitoring rains in cooperation with NASA] will be ready in five years.

Does INEA support demolition of homes in risk areas, as is happening in Nova Friburgo, or safeguards, such as retaining walls?

In terms of the environment, it is better to take out the residents and have reforestation, recuperation of vegetation. If it were safe for residents to continue where they are with [protective] public works that do not involve very heavy construction, then it's better they stay, because there they have a neighborhood, infrastructure. But in the case of riverbanks we will be absolutely inflexible [because homes there are too vulnerable].

Is Rio de Janeiro state simply too crowded, too urbanized?

Obviously, our population has grown a lot. In Brazil overall, as in Rio de Janeiro state, the primary problem is to attend to the housing demands of the low-income population. For 40 years, Brazil did not have housing policies. The first housing program to focus on lower-income earners and home production on a large scale is Minha Casa, Minha Vida [My House, My Life]. I have been a civil engineer for almost 30 years, and I have never lived in a period in which homes were produced on such a large scale as this. Minha Casa, Minha Vida effectively began in 2009. I think it's incredibly important for us to have a more structured policy, with more investment in urban planning and production of affordable housing [via programs such as Minha Casa, Minha Vida]. And we must develop emergency-alert systems and risk mapping. That will allow us to live alongside risk even though we won't be able to take everyone out of risk areas. I think this is absolutely important so we can better face these extreme situations.