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How to save Indonesia's dwindling rainforests

Still Pictures



Where tigers roam no more

AS A spectacle, the four-hour drive to Teluk Binjai from Pekanbaru, capital of Riau province on the island of Sumatra, tends to the monochrome. Mile after mile of palm-oil plantation alternates with mile after mile of regimented lines of acacia trees, grown for pulpwood. Only an occasional banana grove or superannuated rubber plantation offers a spot of variety. Mountainously laden timber lorries ply the interprovincial highway, their loads of acacia logs almost brushing as they pass. In one direction is the mill of Indah Kiat Pulp and Paper, a subsidiary of APP, part of the Sinar Mas group; in the other that of APRIL, Sumatra's other big pulp-and-paper producer.

Off the main road, small patches of "natural" forest survive alongside the swathe of broad sandy corridor cut by a logging company. Some has been cleared fairly recently. Shrouded in white smoke, the peat soil still smoulders under the blackened tree-stumps. Gaunt and barkless, some trees still stand, like skeletal ghosts stalking a battlefield. Underneath, already oil palms are pushing up, planted by local farmers to feed Indonesia's latest commodity boom.

In Teluk Binjai, a village of 400 families sprawling along the bank of the Kampar river, and its neighbour, Teluk Meranti, farmers feel squeezed. Living inside a logging concession, their access to the forest behind their farms is already curtailed. They want to be granted rights to 5,000 hectares of forest on the other side of the river, in the Kampar peninsula. This area of 700,000 hectares of peat forest, home to tigers, sunbears, hawk-eagles and other endangered species, is now being fought over by plantation companies, forest residents and local and international NGOs.

The stretch the villagers have their eye on is also part of a concession. They admit they have no legal right to the land, but they say the concession to convert it to acacia is illegal, since the area is supposedly protected. And the villagers claim customary rights. Their families have used the forest for generations. They still depend

on it for rattan, fuel, honeybees, hunting and wood to build their houses and boats. But they use the resource responsibly, claims Muhammad Yusuf, a local farmers' leader: "We only take the best trees." And no more than they need.

Illegally, some farmers are already staking out claims across the river in the sought-after stretch of forest. One, in his second year there, says the village chief in Meranti granted him a six-hectare claim after his coconut grove in Teluk Binjai was destroyed in a land-clearing fire. He is planting oil palms. Speaking in a tiny hut, against the whine of a chainsaw from the nearby rainforest, he says he is too poor to send his 12- and 14-year-old sons to school. They are working in his fields, helping convert another small patch of peatland, and adding to Indonesia's alarming emissions of carbon dioxide.

Stop it, for peat's sake

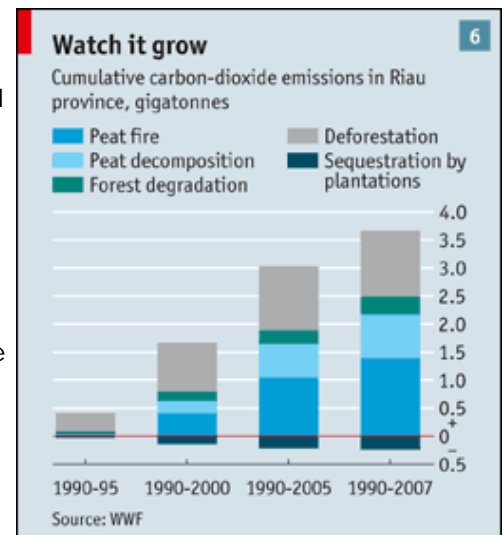
Indonesia's logging of its rainforests has long been identified as a big contributor to the world's emissions of greenhouse gases (GHGs), and hence to global warming. This is one reason for the shocking statistic that Indonesia trails only China and America as an emitter of carbon. But now attention is also turning to the soil beneath the trees, and especially to peat. Al Gore, a former American vice-president and a vigorous climate-change campaigner, has pointed to evidence that the top two metres of soil contain three times as much carbon as the entire vegetation on the planet, and that soil degradation, such as the burning of peatland, is the main cause of Indonesia's high level of emissions.

According to Greenpeace, an environmental NGO, Riau's peatlands have the highest concentration of carbon stored per hectare anywhere in the world. As elsewhere in Indonesia, peat in Riau is disappearing. The trees growing on it are harvested and the land is either abandoned or converted to a plantation. Every year 1.8 billion tonnes of GHG emissions are released by the degradation and burning of Indonesia's peatlands. By the calculation of WWF, an NGO, between 1990 and 2007 Riau alone produced more CO₂ per year than Germany is saving to meet its commitments under the Kyoto protocol.

Small-scale settlers like those clearing the bit of forest opposite Teluk Binjai are a tiny part of the problem. Far more significant, in Riau ("the deforestation centre of Indonesia", according to Yumiko Uryo of WWF) and across Indonesia, are large-scale commercial operations: illegal logging and the conversion of forest land by big plantation companies. By WWF's estimate, of the forest cover in Riau lost in the past 25 years, 29% was cleared for palm-oil plantations and 24% for pulpwood by the big producers themselves—not counting large areas cleared by their suppliers.

The extent of illegal logging, like every other statistic on Indonesia's forests, is disputed. By one reckoning, 73% of the \$1.6 billion-worth of forest products (not including raw logs, whose export is banned) the EU imported from Indonesia last year came from illegally felled timber. But that is a guess, derived by deducting the timber that can be shown to be legal, a process complicated by the often murky ownership of the original forest lands. The Indonesian government reckons that no more than 10% of exports are illegal. It is working with the EU to devise a licensing system for timber exporters which would then be applied globally. Indonesia also faces difficulties in America. Congress, inspired by an unlikely coalition of domestic timber producers and NGOs, last year amended the Lacey act, a law dating from 1900 that bans the illegal commercial transportation of wildlife. It now covers the produce of illegal logging as well.

Protection of the forest against illegal loggers and enforcement of the law are said to have improved since 1997, when forest fires in Sumatra and Kalimantan (Indonesian Borneo) smothered much of South-East Asia in a noxious, choking haze. The fires were spread by a prolonged drought brought by an El Niño weather pattern. Many were lit to clear land illegally logged. And even now the legal arrival of a logging company in an area is often accompanied by criminals chopping away at the edge of the concession. Decentralisation has complicated efforts to enforce the law. Local authorities resent efforts by the central government to assert control.



Hotspots of bother

Indonesia's government denies it is doing as much to cook the planet as its critics allege. Agus Purnomo, a former director of WWF in Indonesia who now heads the secretariat of the National Council on Climate Change, says that the country's third place in the carbon-emissions tables is a hangover from the disastrous El Niño of the late 1990s. With no serious forest fire for four years, he claims Indonesia has slid down to number 15 or 20. He reckons that the "hotspots" (small-scale forest fires) recorded this year—3,764 in Riau alone by July, according to a count by satellite—are "not a big issue". Hotspots are now designated as crime scenes, he says, so that no one is allowed to plant oil palms there. If caught, those who caused them are prosecuted and sometimes jailed.

He points out that it is in Indonesia's own interests to do its bit to reduce GHG-emissions and hence global warming. A study this year by the Economy and Environment Programme for South-East Asia, based in Singapore, mapped vulnerability to climate change across the region, divided into 530 subnational districts. Of the ten most endangered by climate change, seven were on Indonesia's most populous island, Java, which would become increasingly prone to droughts, floods, landslides and a rise in the sea level.

Even more immediately, Riau, for example, is suffering a localised haze at the moment. It is not quite the eye-stinging, throat-burning, aviation-disrupting peasouper seen in 1997, but still the town of Dumai recorded a surge in acute respiratory illnesses in June and July.

Blucher Doloksaribu, who heads the provincial government's Geophysical, Climatology and Meteorology Board, reckons Riau is already suffering its own local, accelerated version of global warming. As forest cover has shrunk from 78% in 1982 to 27% today (see map), minimum temperatures in Riau have increased, he estimates, by an average of 2°C.

After a de facto two-year moratorium for an investigation into alleged corruption, logging has resumed in earnest in Riau this year. Green activists link this to the elections and the need for parties to raise funds.

The big pulp-and-paper and palm-oil companies have several lines of defence against attacks from greens. Responding to growing concern about the impact of palm-oil plantations, the big producers and consumers have joined a round-table on sustainable production. The firms insist that they do follow the law, logging only the "production" forests for which they have bought concessions. But their critics allege that they also buy from less scrupulous subcontractors, and that this year the pressure is especially intense since the moratorium had forced pulp companies to eat into their plantation forests earlier than they would normally have done.

The firms also defend their own practices as responsible and sustainable. Sinar Mas, for example, has set aside some 72,000 hectares (an area bigger than Singapore) of "production forest" as a protected "biosphere", where the trees and wildlife will be preserved. Some even argue that palm-oil and acacia plantations can actually help reduce GHG emissions, though scientists scoff at this notion when the plantations are on cleared natural forest and, especially, peatland.

But Gandhi Sulistyanto, Sinar Mas's managing director, also points to the huge economic benefits his business brings Indonesia, directly and indirectly supporting millions of people and producing more than one-tenth of Indonesia's exports. More than half of Sinar Mas's exports go to China and India. So, despite boasting of his firm's green credentials, and his concern for minimising carbon emissions and saving biodiversity, he cannot conceal his impatience with NGOs: "They care about the orang-utans [which are indeed threatened by the spread of plantations], not the *orangs* [people]."

The great green hope: REDD

Mr Sulistyanto hopes Sinar Mas's biosphere in Riau may yet bring the firm some income from an initiative



known as Reduced Emissions from Deforestation and Degradation (REDD). This is an idea that sounds almost too sensible to have gained currency. Since developed countries have become rich partly by cutting down their trees, and since old forests are better at storing carbon than new ones, it seems fair for the rich world to pay the poor world to stop logging (rather than, as at present, merely to plant new trees, under the so-called Clean Development Mechanism). There is a lot to preserve. More than half of Indonesia is still covered in forest. Sumatra may be a lost cause, like much of Kalimantan. But there is still, for example, Papua.

REDD forms part of the negotiations on a successor to the Kyoto protocol, which will reach a climax at meetings in Copenhagen this December. The idea may be better known in Indonesia than anywhere else. Businesses are already earmarking scraps of their concessions; Merrill Lynch, a big American investment bank, is nurturing a project; less established "carbon traders" are setting up shop in Indonesia; villagers in places like Teluk Binjai have visions of leisurely retirement at the international taxpayer's expense; and the government is creating a complex bureaucratic infrastructure. The forestry ministry has already issued rules on the sort of conservation projects that might be eligible, as well as guidelines on splitting the revenue.

But so far forest carbon credits remain a small, voluntary market. Gordon Brown, Britain's prime minister, has said a deal at Copenhagen should include transfers of \$100 billion a year to the developing world, which would include funds for preserving forests. But there are plenty of question-marks still: the price of carbon, for one thing; how the money should best be used; and whether it would really be paid in perpetuity.

Agus Purnomo of Indonesia's climate-change council is a sceptic. He finds it hard to believe that the sort of money needed to compensate for the loss of deforestation revenue would be forthcoming. The range at present under discussion—\$3-10 per tonne of carbon emissions saved—would be wholly inadequate. He agrees with many that the main point of Copenhagen must be "deep, deep cuts" in rich-world emissions. "You cannot leave saving the atmosphere to poor people."

So it is not easy to be optimistic about Indonesia's forests. Ahead of big international gatherings the government makes big promises. It has, for example, banned the conversion of land where the peat is more than three metres deep. But green groups say that hardly helps, since peat bogs have varying depths, and draining a shallow part will erode the rest. The commercial pressures are bound to grow. The conversion of acacia and eucalyptus as cellulose for biofuels will add a new market, and the development of palm-oil micro-refineries will make it much easier to get the fruit to a refinery within 24 hours of harvesting. Perhaps most urgently, a renewed El Niño is brewing, threatening drought and devastating forest fires.

For the government, carbon emissions will become an ever more galling issue. Just as the country seems ready to take its place on the international stage, gaining credit for its peacefulness, its stability and its pluralism, it will find itself under attack, however unfairly, as a vandal on a planetary scale.