

# Save the Trees, We'll Save Your Life

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**Can medical care motivate Indonesian villagers to protect the rain forest?**

IN JULY 2011, about a week before I landed in Western Borneo, a local man sent an ominous text message to his boss from deep within the jungle. For more than 10 years, this man had worked as a research assistant at the Cabang Panti Research Station, in the core of Gunung Palung National Park, a mountainous wilderness that contains some of Indonesia's last lowland rain forest and remains a stronghold for orangutans, gibbons, and other primates. Like many protected areas in the developing world, Gunung Palung's boundaries were poorly enforced, and the people from the hardscrabble communities nearby had been logging and hunting in the park's periphery for decades.

Cabang Panti (pronounced CHA-bong Pon-tee), by virtue of its remoteness and year-round research activities, had largely been spared. The research assistant, whose name I have agreed to withhold, kept track of the growth of the dominant canopy trees, including Borneo ironwood, which can live for more than 10 centuries and is prized for its dense lumber. One morning, he was walking along a trail when he heard a chainsaw through the thick understory. "I've come across people working," he texted. When he and a coworker returned later, they found a fresh stump and a massive tree splayed across the trail. They took photos of the area with their cell phones, documenting more than a dozen felled trees, including several ironwoods marked with aluminum research tags. Nearby, smaller trees had been stripped of their bark to construct a *kuda-kuda*, a rudimentary rail system loggers use to transport heavy timber to the nearest waterway.

The photos quickly spread through the network of biologists and conservationists working near the park, including an American doctor named Kinari Webb, who operates her clinic in the regional hub of Sukadana. The episode was not as shocking as the time a researcher crossed paths with a hunter holding the embryonic body of an orangutan stripped of its skin. Nor was it as upsetting as the weeks Webb spent caring for an orphaned baby orangutan, only to find a bullet in its stomach after it died. Nevertheless, the tree-felling—conducted in broad daylight, a stone's throw from an international scientific station—was far more significant. It meant that no part of Gunung Palung would ever be safe.

Webb's clinic is the most powerful bridge between the people who want to save the rain forest and the people who are destroying it. Poachers and loggers are just like the rest of us. They get sick. They get malaria. They get ear infections. One way or another, they are going to end up sitting on the turquoise plastic chairs in Webb's waiting room.



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**The Cabang Panti Health Clinic**

NO OTHER CLINIC in the world is quite like Webb's. Since June 2007, her nonprofit organization, Alam Sehat Lestari ("Healthy and Everlasting Nature"), has made Gunung Palung the testing ground for a remarkable—and controversial—strategy: rewarding villages that protect the rain forest with discounts on medical care.

To develop the program, Webb spent a year presenting her vision to the 30 villages bordering the park, and negotiating with their *kepala desas*, or village leaders. She explained that everyone, including loggers, who came to her clinic would receive subsidized medical care—about 40 percent off an exam that might normally cost \$10. Villagers could pay the balance with whatever means they had, including manure for a sustainable-farming program, seedlings for a reforestation plot, or handmade place mats to be sold for fund-raising. The key element was that if the *kepala desa* signed a contract to become a green village, shutting down the local sawmill and renouncing logging, then his people would get a 70 percent discount. These green villages would also get side benefits, like farm training, or even goats, a novelty among people with a history of fishing, hunting, and forestry.

Of the 30 villages, 10 have made the leap from red to green. Driving through these villages, it's easy to see which ones are still engaged in commercial logging, but Webb must rely on the *kepala desas* and informants to monitor small-scale logging. Her organization now provides medical care to some 3,000 patients, and has made more than 1,000 doctor visits by boat or 4×4. Webb's surveys suggest that logging of the land around green villages has decreased.

The tactics of Alam Sehat Lestari, or ASRI, fall into a growing class of approaches called "payments for environmental services," whereby local communities are directly rewarded for conservation. For many years, environmentalists have argued that societies need to take into account the dollar value of ecosystem services, such as carbon storage and watershed protection. Precisely how best to do that remains a matter of much hand-wringing in ethical, political, and practical terms.

The best-known payment scheme is the United Nations' Reducing Emissions from Deforestation and Forest Degradation program. REDD has granted \$59.3 million to help 16 countries develop programs to sell carbon credits based on their standing forests. Because cutting down a tree releases carbon-dioxide into the atmosphere, big emitters can pay to protect forests rather than reducing their own carbon emissions. Funding for conservation payments may also come from, say, a brewery that depends on freshwater or a nonprofit group that wants to preserve tiger habitats, but complexities arise when it comes to payouts to isolated communities in the developing world. Some critics have charged that REDD programs have been launched without the consent of indigenous communities that depend on forests for fuel and building materials; others simply believe that turning nature into a commodity could backfire and lead to ecological extortion. Indeed, in 2009, Ecuadorian President Rafael Correa demanded that tree-hugging countries pay his government \$3.6 billion to spare Yasuni National Park from oil exploration. Why, he asked, must third-world countries endure stunted economic development for the sake of first-world values? Just \$116 million has trickled in so far.

Overall, the results of conservation payment schemes have been mixed. A 2010 review of eight closely monitored projects in China and Latin America found no evidence of environmental benefits. More recently, Nicole Gross-Camp, an ecologist at the University of East Anglia, completed a \$1.25 million experiment to test the impact of conservation payments on communities surrounding a national park in Rwanda. She found that incentives led to modest reductions in animal snares and tree-felling, but she suspects that those benefits really stem from the relationships her research team developed with the locals. That human connection is one reason Webb believes that medical care has a place in this equation. "Combining health with conservation is actually cheap," she said. "It's cheap to conserve habitat, and it's cheap to save people's lives."

By eight o'clock on a sultry Monday morning, the clinic—a blue-roofed one-story home fronted by two flowering bushes—is already feeling claustrophobic. A dozen or so patients have left their flip-flops lined up on the front porch. They now sit in the waiting room with intent expressions on their faces, as ASRI's outreach coordinator delivers a lecture about why protecting the national park is so important. One young couple soothe their crying child. A woman in a white hijab and a purple gown has a potentially cancerous mass on her neck. An older man weighs just 84 pounds; two years of violent spasms in his belly have kept him from working. There was a long day ahead.



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**Kinari and Campbell Webb provide health care at their Borneo clinic—at a discount to villagers who help protect the environment.**

Webb, a slender, dark-haired woman of 40, maintains an affable calm amid the maelstrom of wailing babies, busted equipment, expired visas, and all-around third-world madness. During the week I visited, she was fighting a mean cough triggered by a sting from a box jellyfish, and her husband, Campbell, recently had to evict a 10-foot king cobra from their abode. Just keeping track of patients' files poses a challenge: first and last names are not regularly used in Indonesia, and many people use only one.

Webb explains that she, as a foreigner, could not personally treat patients, but was involved each year in training three Indonesian doctors, who come to work with her to complete their medical certification. She emphasizes differential diagnosis—a deductive strategy of working through symptoms and probable conditions that is rarely taught in Indonesia. Patients also receive care from an ASRI cofounder, Hotlin Ompussunggu, a Sumatran dentist. She has found that nearly every patient needs to have at least one tooth pulled.

Dental hygiene is not the only challenge in rural Borneo. Typhoid, malaria, and strange forms of tuberculosis are commonplace. Webb told me the story of Dardi, who spent his teenage years in a pitch-black room because health officials failed to diagnose his tuberculosis meningitis, which made sunlight excruciating. After receiving treatment, Dardi, then 17, made a full recovery. Of course, any ailment has serious consequences if improperly diagnosed. One day, Webb sent a man home to die because he was beyond treatment. He had a large mass in his bladder, his kidneys were failing, and his breath was a whisper. Doctors at a hospital in a city five hours away had said he had cancer. But he was just 31. Webb suspected he had had an infection—treatable with antibiotics.

KINARI AND CAM WEBB were particularly troubled by the July 2011 logging incident because their own relationship—and their relationship with Gunung Palung National Park—had its beginnings at the Cabang Panti research post. In 1993, Kinari was an undergraduate studying orangutans when she met this bearded Brit working on his doctoral dissertation about tropical trees. They swam under waterfalls and dined on rice noodles over candlelight. They married two years later.

As Cam pursued his research, Kinari earned her tropical-medicine stripes, volunteering with Baptist missionaries who run the well-regarded Bethesda Hospital, in northern Borneo. Webb is a Mennonite, but had an atheistic upbringing in a small town near Taos, New Mexico. Her parents, who are divorced, both have doctorates in psychology and are of a hippie bent. The name *Kinari* is the moniker of an angel-like half-bird creature of Hindu mythology who defends the tree of life.

Webb was fascinated by the human body, so rather than pursue a traditional career in conservation, she enrolled at the Yale School of Medicine. After the fall of the Suharto dictatorship, in 1998, the Webbs, then living in Connecticut, feared the worst for Gunung Palung, as Borneo's forests and peat bogs were replaced by rows of oil palm. The Bornean people—indigenous Dayak and poor migrants from Java and other islands—earn an average of \$13 a month and have few economic options besides logging. Indonesian Borneo, called Kalimantan, has lost more than half its lowland forest in protected areas since 1985, and illegal logging and burning has made Indonesia the world's third-largest emitter of greenhouse gases, according to one government assessment. Orangutans, which are native only to Borneo and Sumatra, are on a trajectory toward extinction within 10 to 20 years.

In December 2004, an earthquake and subsequent tsunami struck the coast of Sumatra, killing as many as 170,000 people in Indonesia and displacing half a million more. At the time, Webb was working 100-hour workweeks as a resident at a hospital in Martinez, California. When she came home every night, Cam gave her updates on the situation. “We really need to go,” he told her. She took a leave from her residency, and the couple volunteered with the International Medical Corps in the hard-hit province of Aceh. The experience solidified their drive to do something positive in Indonesia.

Three years later, the Webbs paid \$200 to rent out a large home in Sukadana (population 12,000) for a year and make it their clinic. Cam earned a salary from Harvard University’s Arnold Arboretum, conducting research and helping out with reforestation efforts, while Kinari donated her time.

ONE MORNING, Cam and I sit down to talk with a man named Patab, a farmer from Tanjung Gunung, a village about 30 minutes away, who had come to Alam Sehat Lestari for medication to treat his high blood pressure. Under ASRI’s scheme, Tanjung Gunung is a red village; it does some of the heaviest illegal logging. It also serves as the trailhead leading to the Cabang Panti station. In all likelihood, Patab knows the very men who cut down the ironwoods discovered by the research assistant. He works as one of ASRI’s forest guardians: an informant and an intermediary between the loggers and the conservationists. Whenever he meets loggers, he tells them, gently, to stop.

“What do the loggers tell you?” I ask him.

“They always say ‘We do it because we don’t have a job.’”

But Patab, a soft-spoken man in a baseball cap, seemed to be guiding ASRI toward an unexpected resolution. He told us that everyone in Tanjung Gunung had land for growing rice, but unreliable irrigation and saltwater intrusion had made such an endeavor difficult.

The village could build two dams, which would not only improve agriculture but also complicate loggers’ use of waterways to extract their bounty. ASRI is now working with private donors to fund the dams’ construction, and to provide the villagers with cattle, which can produce manure for farming. Such negotiations are not explicitly part of the program, but they are a staple of ASRI’s community-oriented approach. “The clinic gives us social capital in a way we could never have otherwise,” Kinari said. “When we say we really need to find a solution to stop logging, the [local people] really listen to us.” Regardless of the ultimate outcome in Tanjung Gunung, Webb feels it is important to work with red villages to keep negotiations open and spread an environmental ethic.



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**Caring for a patient at the Cabang Panti Health Clinic**

WEBB’S PATIENTS RECEIVE top-notch treatment, but with ideological strings attached. Webb denies that ASRI is missionary in any shape or form, but it’s easy to see religious parallels in her eco-evangelizing. “I feel I am doing what God is asking me to do,” she told me.

How different is her clinic, really, from a missionary hospital? Experts I spoke with were torn about the program. Lisa Fuller, an ethicist at the State University of New York at Albany, says that medical care shouldn’t be a bartering chip: “There is a sense in which it seems you are exploiting people’s situation to further an agenda.”

ASRI's Indonesian doctors-in-training say that nothing could be further from the truth. "Everyone here works with heart," says Lasmida Ruth Simatupang, a graduate of the University of Indonesia medical school, who contrasts ASRI's passionate staff members with those in a government clinic where the doctors clock out at noon. "We have a family here, and I think the medicine is more complete."

Matthew Hunt, a bioethicist at Montreal's McGill University who studies humanitarian aid, says that a growing consensus holds that doctors and nurses must also be, to some degree, advocates. "It's a natural fit for a health-care provider to be concerned about the impact of the environment on health issues," he says. "My reservation about the scheme is the way these things are tied together." It's one thing if we are talking about a subtle nudge, such as the modest discount nonsmokers and regular exercisers can get on employee health plans. But for ASRI's patients, living on meager incomes, the difference between the cost of health care for a red village and a green village is significant. More important, Hunt points out, the decision to embrace environmentalism occurs not at the individual level, but at the village level. Webb admits this is a problem: in one red village, the leader campaigned on a platform of abolishing the national park and continues to refuse to negotiate, but many villagers have said privately they don't support logging and wish they could receive a discount.

Such moral ambiguities may be one reason the unconventional incentive scheme has had trouble finding a place in the humanitarian landscape. Webb's early proposals to work with established organizations, such as the International Medical Corps and Doctors Without Borders, were rebuffed. With an annual budget of just a few hundred thousand dollars, the clinic barely squeaks by each year. ASRI's cofounder, Hotlin Ompusunggu, received a prestigious award from the Whitley Fund for Nature last year, and the U.S. Fish and Wildlife Service's Great Ape Conservation Fund is a longtime supporter, but Webb has yet to tap into major funding streams. She was hoping to open a hospital this year, where her staff could perform surgeries, but has received only a third of the donations she needs, and still lacks government permission after two years trying to obtain it.

The organization's challenges grew more daunting shortly after I left. Webb's cough lingered for weeks. During a fund-raising trip to the U.S. in September, she grew seriously ill and was diagnosed with dysautonomia, a neurological condition resulting from exposure to the jellyfish's neurotoxic venom. Cam abandoned his fieldwork and rushed to Boston, where Kinari was hospitalized. After recuperating for several months, she briefly returned to Sukadana, but her condition deteriorated. Hotlin has taken over operations there while Kinari is confined to bed rest, in Bali. "I've been through every drug there is," Webb told me during a phone call in April. While her body heals, her mind is plotting how to replicate her clinic's positive impact in other regions.

Ecologist Andrew Marshall of the University of California at Davis notes that the number of people involved in logging in recent years has declined. "It's hard to know why that is—whether there is less timber now or whether there are more alternatives," he says. "But the message does seem to be getting through." Next spring, one of Webb's volunteer managers, Kari Malen, plans to open a new clinic in the Raja Ampat, islands off the coast of New Guinea known for their coral reefs. ASRI now faces growing pains familiar to those of many humanitarian-aid programs: its success depends as much on its idiosyncratic model as on personal relationships cultivated over many years.



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**Busni, a rubber tapper, paid for his medical exam with seedlings.**

