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**The Other Side of the Divide**

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Categories Columns

Walk down any street in East Timor's capitol of Dili and the scene is the same: blackened, roofless buildings and heaps of rubble. Severed telephone lines dangle from exposed walls, charred satellite dishes point skyward, and traffic lights stare blindly at intersections. Only a tiny fraction of the city's 60,000 residents have running water or electricity. Pigs and chickens pick rubbish from drainage ditches while a few children play trampoline on bits of corrugated roofing. Emaciated dogs trail clouds of flies.

The devastation is complete. Little escaped the political violence of last September after a popular vote ended 24 years of brutal military rule by neighboring Indonesia. For weeks afterward, anti-independence militias, Timorese thugs with rumored ties to the Indonesian military, roamed the country furiously burning everything in their path, leaving only scorched earth behind them.

Now East Timor, the world's newest nation, must build an economic, political and physical infrastructure from little more than ashes.

The work has already begun. On one street corner, an elderly entrepreneur sells powdered milk and candles from a wooden shack. On another, workers tap nails into wooden beams or dab new concrete onto the walls of buildings that a few days before looked a total loss. And just a short walk from the docks that were once the economic heart of this harbor city is the nucleus of East Timor's reconstruction: the government administration building.

The fresh white paint and unbroken windows of its porticoed flanks are alone enough to make the building stand out. But its true significance is signaled by the rack of functioning satellite dishes on its roof, the braids of ordinary telephone and power cables that wrap its sides and the loud talk of people on mobile phones in the parking lot.

Inside this Iberian architectural treasure, the United Nations has taken on the role of interim government while the fledgling nation prepares to elect its own government next year. From a generator-powered control room, borrowed bureaucrats run makeshift ministries - agriculture, trade, fiscal affairs - using hastily wired computers. Operatives buzz back and forth, setting tariffs, planning roads and budgeting aid programs. E-mail, Internet access and a high-powered intranet lubricate the wheels of an ad hoc bureaucracy in a country with no reliable electricity, little phone service and virtually no PCs.

Away from the administrative fray, though, toward the back of the complex, is where East Timor's future is really being laid out. Behind tinted windows that eclipse the midday sun, Pedro Braga sits at a corner desk in a tightly packed office. The head of the U.N. interim government's IT telecommunications division, Braga's job is to bring East Timor into the digital age.

Half Portuguese and half Chinese, Braga was born 66 years ago on Macao - an island that, like East Timor, was once a colony of Portugal. Right now, he's talking on one of the few functioning desk phones in the country. It's a short call. Braga has things to do, and an engineer's economy with words.

He picks up a sheaf of papers he's been working on mornings, evenings and weekends for months. "Here it is," he tells me, "the future of the country."

Specifically, it is an outline of the series of herculean tasks required to rebuild East Timor's telecommunications system. It's pretty bleak stuff. Last September, before the violence, this nation of 770,000 people had only 8,000 fixed telephone lines. Now it has 2,000. Of 28 telephone structures nationwide, including buildings and telephone towers, only one remains undamaged, the central switch in Dili.

The relative numbers are even more disturbing. In the United States, there are roughly 64 phones per 100 people, or a "teledensity" of 64 percent, according to the International Telecommunication Union. In middle-income countries like the Czech Republic, teledensity is generally around 32 percent, while lower-income countries like Guyana and Jordan may have teledensities as low as 6 percent. In East Timor right now, teledensity is estimated at 0.26 percent.

As for computer ownership, the gap is even more dramatic. More than half the people in developed regions of Asia like Singapore own some kind of personal computer, according to market-research firm Roper Starch Worldwide. The proportion is roughly the same in North America. In East Timor, there are essentially no computers, at least outside the U.N. compound. If you need to communicate with someone here, you just have to walk around until you find them.

Which is not to say that Braga has given up hope. This fall, he and his staff will award a multimillion-dollar contract to overhaul the nation's telecom system, providing East Timor with all the communications accoutrements of a more developed economy - mobile telephony, fixed-line telephony, data carriage and international access. Braga's not sure who will step up to bid, although Australia's Telstra (TLS) and Portugal Telecom appear interested, as do a few private consortia. Ideally, Braga says, he'd like to see the results of East Timor's first national election late next year beamed around the country over a fully functioning telecom system.

Braga is painfully aware of how ambitious that timeline is. He is also aware that some may ridicule such an ambition for a nation that can barely feed, clothe or educate its people, much less provide a dial tone. But the U.N. sent him here to make sure that East Timor has the best possible chance of recovery. If he gets telecommunications right, he says, the synergies of the information age will form a tailwind, blowing East Timor out of the horrifying present and into the prosperous age enjoyed by so many in the West.

Out on the streets, it's easy to see the raw material from which an East Timorese Internet Economy might take root. On street corners, teenagers will sell you single cigarettes from a pack. On the road to the airport, street hawkers will top off your gas tank from plastic jugs of gasoline, undercutting the city's one gas station. Outside Dili's few cafes, kids sell you newspapers and keep an eye on you, hoping they can retrieve the paper later to sell again.

Braga's dream is to provide the means to link this street-level hustle to the crankshaft of modern communications. He is not alone. International organizations like the G8 and the World Bank increasingly cite entrepreneurship and technology as the twin engines that will drive Third World nations out of their misery. And as the U.N. convenes its 55th General Assembly on Sept. 5 in New York, such issues are at the top of the agenda. [See sidebar, page 182.] But what can the Internet, or even a working telephone, do for a nation with no new economy, with no economy at all?

Narrow and mountainous, the 300-mile-long island of Timor lies at the southern end of the Indonesian archipelago, a few hundred miles north of Australia. Portugal first established settlements on Timor in the 1500s, eager to profit from the island's abundant sandalwood forests. In 1859, Portugal and Holland, which had colonized what is now Indonesia, agreed to split Timor roughly in half, with West Timor going to the Netherlands. When Indonesia gained independence from Holland in 1949, West Timor fell under Indonesian rule.

In 1974, Portuguese dictator Marcelo Caetano was overthrown by a group of leftist generals who pledged, among other goals, to relinquish control of Portugal's remaining colonies, including Angola and East Timor. Several Timorese independence parties arose, and interfacional squabbling quickly followed. Indonesia, taking advantage of the opening, invaded East Timor in December 1975 under cover of support from one of those factions.

East Timor was, to say the least, never a good fit for Indonesia. The country's roughly 770,000 people are devoutly Roman Catholic, while Indonesia's 200 million people are overwhelmingly Moslem. Guerrillas fought the Indonesian army as well as other independence factions. Famines, forced mass relocation into "resettlement camps" and harsh military rule, including the massacre of hundreds of unarmed independence protesters in Dili in 1991, made East Timor one of the world's most hellish regions.

Amazingly, though, things got worse. In 1998 Indonesian President Suharto was forced to resign after 32 years in office, and Interim President B.J. Habibie agreed to a popular referendum in East Timor. The alternatives presented to East Timorese voters were greater autonomy within Indonesia or outright independence. Despite months of violent intimidation, including alleged incidences of torture, rape and mass killings by militias favoring autonomy, nearly 80 percent of the population voted in favor of independence. Following that outcome, a violent backlash raged unchecked as the Indonesian government ignored the destruction.

An international peacekeeping force led by Australia later replaced the Indonesian army in East Timor, and progressively chased the militias into the mountains or into West Timor. The United Nations now runs the government, the first time the U.N. has played such a comprehensive governing role for an entire country.

Indonesia remains politically unstable, and a recent spate of clashes between U.N. peacekeepers and Timorese militiamen (two U.N. soldiers were killed recently in separate battles) make an open question of whether the worst has yet passed.

If East Timor is to enter the digital age, it will first require electricity. Large areas of the country have none. Other areas have it for just a few hours a day. Each night in Dili a different part of the city is blacked out to prevent the entire grid from collapsing. On nights when the lights go out and the equatorial stars twinkle above the darkened city, the scene is hardly pastoral as a chorus of chugging generators crank out a head-pounding din.

When electrical power is switched on, fluctuations in current can destroy equipment, including desktop computers. Australian electronic-goods retailer Harvey Norman opened a shop in Dili in June and has sold about five desktops thus far. None came with any kind of warranty, says Victor Rustam, the Sumatra-born New Zealand citizen who manages the store.

As a goodwill gesture, Rustam swapped out one customer's hard drive after the local power supply cooked it. But he says he can't do that for everyone: "The manufacturer isn't going to wear this, and we certainly can't."

The best surge protection in East Timor is to use a laptop, since electrical current passes into a battery, which in turn provides power to the sensitive components. Thus laptops have a kind of built-in buffer against the power supply.

A mobile-phone system of six towers provides limited coverage to parts of metropolitan Dili. But the service is expensive, and only expatriates, U.N. personnel and soldiers paid in foreign currency can afford to use it. Local Timorese generally have no telephone of any kind.

There's no banking system, either. Everything is paid for in cash, preferably U.S. dollars. But with Australian dollars and Indonesian rupiah also circulating and no way to monitor transactions, U.N. officials acknowledge they have little idea of such fundamental macroeconomic variables as East Timor's money supply, rate of inflation or balance of payments.

Many commercial banking records were either destroyed or carted off to Indonesia after last September's vote, leaving many depositors and businesses with commercial transactions still in limbo nearly a year later, according to Fernando DePeralto, an official in the U.N.'s Central Payments Office in Dili. Similarly, many municipal records were destroyed. For any unit of property here, the issue of ownership largely remains unresolved.

All of these are solvable problems, of course. But who will solve them and when is an open question.

Robert Cooksey, a venture capitalist, pulls his rented SUV into a narrow, dusty alley on the outskirts of Dili. The local pigs and chickens scatter. Cooksey, an Australian, is here to visit a Catholic mission school, one of the few places in East Timor offering any kind of computer training. Among his other projects, Cooksey is working to provide the school with more computers in the hopes of developing East Timor's human capital.

"It's amazing what they've achieved," he tells me, sweeping past a snoozing dog as we enter the school grounds. In a room containing four donated computers, a Portuguese music instructor is teaching students in their 20s the basics of Windows: how to open files, close files, create documents. She instructs in Portuguese and her words are translated into the local language, Tetun, to help the students navigate the English menu.

For Cooksey, it's a start. "Late last year, the highest priority was to provide security, food and shelter," he tells me as we walk around. "Now we're moving on to a second phase, getting the country moving again."

Cooksey believes East Timor has huge potential. As a tourist resort, it could one day rival Indonesia's islands of Bali or Lombok. As a low-cost labor center, it could provide electronic back-office services to developed countries. And if oil and gas revenues pour in from the Timor Sea later this decade, the country could be set for, if not an economic takeoff, at least happier times.

Earlier this year, Cooksey put together a consortium of Australian and European investors to bid on Pedro Braga's project of rebuilding East Timor's telecommunications system. "This will be perhaps the most important commercial decision the new country will make," Cooksey tells me. "It's a small market, but if you work with all the segments - government, education and health - you can do something that's both commercially profitable and really beneficial to the people."

With more deeply integrated communications among schools, health facilities and government, Cooksey says services might be delivered to the poor in rural and remote areas at low cost. These could include special school lessons delivered digitally, or medical opinions delivered to regional clinics, saving patients a trip to the city. Could the technology pay for itself? It's still unclear.

What is clear is that in a country as dysfunctional as this, every bit helps. For his part, Cooksey believes that if Braga is going to join the 21st century, it needs three things: English, computer literacy and a decent telecom network. Cooksey says the Timorese will have to teach themselves English, but he might be able to help with the other two. At his most ambitious, he suggests that East Timor can turn its near-total lack of infrastructure into an advantage.

The constantly falling price of telecom equipment, he says, could enable the country to install one of the world's most sophisticated telecommunications networks, fresh off the shelf and cheaply. These days, he says, an IP-based data router costs almost the same as a voice-based central telephone switch. By avoiding the kluges of legacy systems and building from scratch, East Timor could bypass decades of costly development and skip right to a state-of-the-art, nationwide IP network that efficiently carries voice and data simultaneously.

Later, I ask Braga about Cooksey's vision, and he nods slowly. State of the art is fine, he says, but he's not convinced the time is right for it. East Timor's communications infrastructure may be largely destroyed, but it isn't completely gone. "Of course, I'd also prefer to put in an IP-based network. Who wouldn't?" Braga says, "But we do have some existing circuit-switch infrastructure, and we need to work with that."

At what point do you make the disruptive jump to new technologies? And is East Timor - a nation with little indigenous expertise in new technologies - the right place to try? Braga hasn't made up his mind.

"I touched a computer for my first time in March," says 30-year-old graduate engineering student Jose Gusmao, shaking his head as if revealing an uncomfortable truth. "When I was at university I saw computers, but they were only for the faculty."

When East Timor gets wired - and that's still at least a year off - Gusmao wants to be among the first to savor the fruits. Gusmao and five colleagues now share two Pentium IIs donated earlier this year by the World Bank. He and the other members of the Association of Engineers of East Timor have set up the PCs in a burned-out office complex that once housed the local Indonesian secret police.

It's a largely roofless, one-story hulk that still smells of smoke. In the center of the complex, an open courtyard bakes in the midday sun. From there, the engineering students' office is easy to find. It's the only place in the building with a roof: a lacework of palm thatch. Gusmao and the others bought the material from a nearby village and installed the roof themselves.

Every hour of the day, someone stays with the computers. Two people sleep with them each night. During their waking hours, Gusmao and the others teach each other AutoCAD and other engineering programs. Gusmao believes that in all of Dili there are less than 50 PCs outside the control of the U.N. or other international aid organizations.

Gusmao and his classmates are now drawing up architectural plans to reconstruct Dili. They've already completed one project, a residential area on the outskirts of Dili funded by the World Bank. They're hoping for other jobs from multilateral agencies, as well.

For Gusmao, the telecommunications and computer revolution can't arrive fast enough in East Timor. He points down the road to the city's sprawling and chaotic central market, where largely illiterate East Timorese hawk everything from second-hand clothing to gasoline of dubious origin. The market operates from a massive accretion of tin shacks and makeshift shelters under plastic tarps.

Gusmao has ascertained that such sprawl results from imperfect buyer-seller information. "Prices are not stable from place to place in the market - they jump all around," Gusmao says. "With computers we could compare, and tell some merchants their prices are too high."

Well, yes. It's difficult to decide if such a revelation is hopeful or heartbreaking. Any marketplace that had advanced to the point of real-time pricing over the Internet would long ago have been ditched by someone by sidewalk blanked. But it does indicate an intuitive grasp of the power of networked computers, even by a child who has never used them.

Gusmao is at the vanguard of East Timorese Internet consciousness, though, he speaks English, which few Timorese do, and he has at least the semblance of an education. Right now, he lacks of education in computers is holding back people like Gusmao. Gusmao estimates that only two or three out of every 100 people in Dili have even heard of the Internet. Only a few more have heard anything about computers. Clearly, there's a long way to go.

While the 24-hour bakery next door struggles to meet demand, 30-year-old Australian computer technician Daniel Zich has time on his hands. Since he opened the Big Byte, a computer sales and service shop, three months ago, few customers have come around - despite the prime harborside location and air conditioning.

Slow demand has done him in. He's heading back to his native Darwin in Australia's Northern Territory, hundreds of miles south across the Timor Sea. As possible the only independent computer technician in all of Dili, his departure will set back the arrival of the digital age in East Timor substantially. "Would I return?" he says. "Perhaps. Maybe I was just too early."

Breading executive, has opened a low-tech but well-stocked supermarket. Located on Dili's main commercial thoroughfare, his store is one of only a few dozen proper retail establishments in the capital.

MacManus has named the store Hello Mister, the two words generally known here in Portuguese, English, Tetun and Indonesian, and the local children's favorite phrase to shout at foreigners. Inside Hello Mister, frozen goods and assorted nonperishables are for sale, and the bright white lighting would do a police interrogation room proud. The highly numerate salesclerks can instantly figure prices in U.S. dollars, Australian dollars and Indonesian rupiah, and make change with equal ease.

MacManus has the shop's interior white walls repainted every three to four days to cover up dust marks and handprints. In all, it's dimly suggestive of a "retail experience." The alternative remains the chaotic outdoor market up the street.

His efforts aren't be working. In addition to shopping there, many locals congregate in front of Hello Mister to socialize. MacManus says his next big challenge will be getting checkout scanners. Online shopping and home grocery delivery, on the other hand, are far down the road.

Many of East Timor's problems are common to the Third World: degraded infrastructure, it also has a educational attainment, high levels of illiteracy, poor communications, bad overall health, poverty. It low of all problems all its own: a 500-year colonial legacy, a total lack of trained administrative elites and the lingering social trauma caused by years of wanton murder and displacement.

But the country has taken at least the first steps toward creating a democratic government that will enhance political stability and lay the groundwork for economic growth. From there the native resources of the country - the entrepreneurialism of its people - may find a springboard. If the current microscale trading in cigarettes, gasoline and newspapers is anything to go by, there's little reason to think East Timor can't move up the business chain. Given, that is, political stability and half a chance.

Already, the city has a symbolic stake in cyberspace. In 1997, East Timor quietly registered the top-level domain name .tp - two years before the country's independence vote was held. The domain's official administrative address is in the scenic coastal town of Manatuto, just outside Dili. The settlement now is without any form of telecommunications, and has only sporadic electric power. Even so, it's a sign of the future. As is the fact that East Timor has been assigned its own international dialing code - 670 - even though it has few fixed-line phones to connect.

All this in place now, before the country has even decided on a national anthem, an official national language or a domestic currency. If the totems of nationhood are changing, East Timor already has a national flag planted where it increasingly counts - in cyberspace.

As the physical foundations for an Internet Economy are laid in East Timor, one can at least hope that it is the Timorese themselves who will ultimately decide their fate. For them, external domination began with the arrival of Portuguese sailing vessels, the state of the art in globalization circa 1500. The 21st century equivalent of those ships - telephones and the Internet - may have a more positive impact on the nation.

If their native hustle is any measure, the Timorese have the entrepreneurial software. Now they need the hardware. For Braga, the question is what kind of hardware. Building a gold-plated telecommunications system in a desperately poor country makes as much sense as building an eight-lane highway through Dili, where the few people have the money to buy a car. Ultimately, Braga says, the people must pull the thread, not the other way around.

"There are three ways you can feed the pigeons: by tossing grains and allowing them to pick them up, by throwing lots of grains all at once and watching the birds scatter, or by catching them and then force-feeding them," Braga says. "I say let's proceed cautiously, allowing the birds to pick up the grains."

Stewart Taggart is a writer in Sydney, Australia.

**DEVELOPMENT, THE DOTCOM WAY**

As the United Nations convenes its 55th General Assembly this week in New York, a key issue on the agenda will be bringing the Internet economy to the Third World.

U.N. Secretary-General Kofi Annan, who has dubbed this General Assembly the "Millennium Summit," is one of the most visible proponents of technology. In a report released in preparation for the summit, Annan said information technology is already making it possible for places like Bangalore, India; Guadalajara, Mexico; and Sao Paulo, Brazil "to leapfrog existing barriers to development."

He has proposed that the United Nations launch a high-tech volunteer corps, the U.N. Information Technology Service, to train countries in making the most of their information resources. Other United Nations proposals include the creation of a Web-based health network connecting 10,000 clinics and hospitals in Third World nations to medical information resources and a partnership with the International Red Cross and Swedish telecommunications giant Ericsson to create a disaster response program.

Annan is not alone. On July 22 in Okinawa, Japan, leaders of the G8 nations adopted an information technology charter agreeing that "everyone, everywhere, should be enabled to participate in and no one should be excluded from the benefits of the global information society" and appointed a task force to see just how that might be done - results to be reported next spring. Japan added some teeth with an \$18 billion pledge.

Also getting into the act are public-private partnerships like the Global Network Readiness and Resource, Initiative. Emerging from last year's World Economic Forum, the initiative is dedicated to providing communications infrastructure and information technology for basic social and economic needs. Founding partners include Harvard's Center for International Development, IBM and the United Nations.

Although such programs are just getting off the ground, Annan for one has high hopes. He wrote recently that within 20 years, we should offer "all young people between 15 and 24 the chance of decent work" and "transform the lives of 100 million slum dwellers around the world."

"These targets are realistic," Annan continues, "if we take full advantage of the opportunities offered by globalization and the revolution in information technology."

Now the trick is to harness these twin forces while ensuring that they don't push unskilled workers off the map.

-Stacy Lawrence

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