

MEDIA & THE ARTS

Jugaad Urbanism

India's great art of making do

BY MEERA SUBRAMANIAN

FOR CLOSE TO A DECADE I worked on a forty-acre land trust called Aprovecho at the end of a dirt road in Oregon. We grew our own food, raised goats, built straw-bale houses, drank water from a gravity-fed spring, and were fairly sure we were onto a transformative way of living based on voluntary simplicity. It was isolated in some ways, but our work developing efficient, wood-burning cookstoves reached far out into the world, finding its way to distant locales in Central America, Africa, and even India, where my father was born and I would go to visit every few years. To make a rocket stove, in its most elemental form, all you needed was two large coffee cans, a couple small soup cans, and a pair of tin snips. We would test for efficiency by metering out ounces of wood until a simmering pound of beans was soft.

Like half of humanity today, I left my rural outpost for the city, but Aprovecho remains. Its name derives from a Spanish word we translated as "I make best use of." There is no real equivalent in the English language. "To take advantage of" is the closest we gringos get, and that phrase has a decidedly negative connotation. What about the good and creative ways to make do?

My father's people know how to make do. If necessity is the mother of invention, then Indians are her midwives. Their

Hindi word is *jugaad*, a brilliant adjective that fills the mouth for the first half and softens in the second until the nearly imperceptible *d*. It is a slippery untranslatable word that means something akin to resourceful or innovative, makeshift or jury-rigged. It's a noun, too, the name of the haphazard vehicles that ply India's rutted roads, Mad Max mobiles pieced together with a motley collection of boards, machine parts, and jeep fragments, powered by hand-crank engines that likely had prior lives as irrigation pumps.

Jugaad Urbanism: Resourceful Strategies for Indian Cities, an exhibition at the Center for Architecture last spring, brought a sampling of these innovations to New York City. The exhibit focused on four Indian cities—Delhi, Mumbai, Ahmedabad, and Pune—and four critical natural resources—water, energy, transportation, and land. The colorful, almost playful exhibit offered examples of how designers, architects, artists, and activists are responding to a widespread lack of basic amenities in India. There was the Envirofit, a sleek adaptation of the rocket stove, built with the same design principles we'd experimented with back in Oregon. There were hand-powered spinning wheels that generated electricity for a small light and transistor radio, elaborate street chandeliers made out of plastic bottles and LED lights, composting toilets that separated liquids from solids, and solar-powered cycle rickshaws. There were also architectural renderings and models for low-income housing and video installations of perhaps the world's first-ever Toilet Festival. "The sheer impossibility of

the Indian city is completely subverted by *jugaad*," curator Kanu Agrawal said.

In my frequent trips to India over the years, I have witnessed this "sheer impossibility," as well as its subversion. I have been astounded by the hurtling advancements I see on each subsequent visit, but equally astonished by how much everything seems to stay exactly the same. Soon the roadside *chai walla* stands on Chennai's shiny new IT Corridor will have wireless service, but there will still be someone pissing in an open ditch next to you.

Because where else is there to go? India may be the rising power of the East—the capital *I*, alongside Brazil, Russia, and China, in the ballyhooed BRIC bloc—but 120 million Indian homes have no indoor toilet. Sixty percent of its population has no access to clean water. (Imagine asking ten of your friends for a glass of water and finding that only four are able to provide.) Four hundred million Indians have no electricity, and all are accustomed to daily power cuts. There are people *everywhere*, over a billion and counting, a newborn howling its way into a world of want each and every second. Yet somehow, for the most part, it works.

The Jugaad Urbanism show was about how it might work better, not only in South Asia but also here, in our Western world of abundance, where we declare a drought if we can't wash our cars whenever we want. It was about how to unearth the lessons pieced together with bits of wire and ingenuity to make a new world. "The hyperbolic expansion of cities [is] rife with opportunities for urban design," said Agrawal, his eyes intent behind dark-rimmed glasses even as his



A jugaad vehicle—assembled entirely from spare parts, water pump engines, and wooden carts. The vehicle displays no registration plate, runs on diesel, and pays no road tax.

soft demeanor revealed him as the mild-mannered, Yale-trained architect that he is. "Within the multilayered urbanism there are whole complex systems." He described these systems as urban morphologies.

In the name of progress, some of these morphologies are being dismantled. Resettlement plans might demolish a rat-infested shantytown like Mumbai's infamous Dharavi, where there is only one toilet per few hundred people, but when the replacement is concrete block structures forty miles from the city center, with no jobs and no transportation, the "plan" in city planning disappears. Agrawal described one of these relocation developments—which had abundant electricity but zero water infrastructure—as a "relentless grid without any idea about

how people live." He also pointed out that places like slums are sometimes the most productive parts of a city, their scrappy citizens the recyclers and producers of a vast array of materials and products. "Mumbai is *made* in Dharavi," he said. "If you remove it, there will be a huge economic vacuum."

Is there a way to develop without destroying? This is a question being asked from Brooklyn to Bangalore. One alternative featured in the exhibition was a project of SPARC, the Society for the Promotion of Area Resource Centres. This Pune-based organization called on Swedish architects to create a building-by-building *in situ* renovation plan that keeps the structure of the slum—officially called an "informal settlement"—fundamentally intact while making it safer and healthier for its

inhabitants with new buildings. Adaptable design allows for expanding families, small businesses, and animal husbandry, all critical elements of making a jugaad lifestyle work. Homeowners contribute 10 percent of the cost, either through cash, labor, or supplies, and the government in turn provides a \$6,500 subsidy. Of the half-dozen projects featured in the "land" portion of the exhibition, this is the one that is turning into reality. The program has so far provided new homes for four thousand families in Pune while allowing them to stay integrated in their existing communities, where social networks can remain unbroken.

It's a start, but Pune is a city of 4.5 million people. Nearly half live in these "informal settlements," a name that makes

Vyjayanthi Rao recoil. Rao is an anthropology professor at The New School for Social Research and codirector of Partners for Urban Knowledge, Action and Research (PUKAR), a Mumbai nonprofit and conceptual laboratory for ideas about globalization and urbanization. "What we are trying to grapple with is the notion of the informal," she said. "It is extremely misleading. One should call it the 'actually existing urbanism' of India, because the formal doesn't really exist." Everything, she was basically saying, is jugaad.

Alexander Keefe, an American journalist who lives on and off in India and has a blog called "Jugaad," agrees. He sees Indians negotiating every relationship they have: with their resources, with each other, with the state. He expanded on the word for me: "It's often used with the verb *karna*, to make. Like, make an arrangement, make a quick fix." It's all temporary, and it's all makeshift. He paused, then stressed, "What it does not mean is to come up with a brilliant solution to India's energy problems."

His point is that Indians make do

because they have to make do. If social and economic systems are functioning, you don't need jugaad, at least not everywhere, all the time. So the question is, do you celebrate the improvisational world? "Yes, places like Dharavi are economically clever," Keefe said, "but there's no equity, no environmental or labor protections. It's not necessarily a world we want to strive for."

Even Agrawal admits that there is a "boutique" element to much of the show. He hangs his head in disappointment, wishing that the government would make a bigger commitment. "I visited every project in this exhibition, but many of these efforts are stifled by corruption and inertia." The Indian government "should be using democracy in a more powerful way," he said ruefully. Likewise, it remains to be seen whether India's fast-rising middle class is even considering these issues in its rush into a globalized world economy and culture.

"Shortage of resources is a global phenomenon," said Agrawal. "We take so much for granted [in the West]." His hope for the show is not that India leaps into an eco-revolution, with composting toilets and solar-powered lights in every home, though I'm sure he wouldn't object if that happened. His hope instead is that an exhibition like this, shown in the developed world, encourages designers to think about how to put their skills to use and inspires people everywhere to share limited resources more graciously.

While I'm generally delighted by the idea of collaboration and cultural cross-pollination in everything from design to diet, I somehow

wanted to see fewer Western names affiliated with the projects in Jugaad Urbanism. And it was disappointing to learn that there was still no certain plan to have the exhibit shown in India. This is not for lack of desire on the part of the organizers, but simply a question of funding. Which brings us right back to the root of the problem: resources. Who has them? Where are they allocated? What is prioritized? If there is not enough interest on the part of India, in all its vastness, to even support the dissemination of these creative responses to the fundamental issue of lack, then how will these ideas—spinning wheels that make electricity and thread! smokeless wood stoves!—ever gain the widespread traction they need in order to make a substantive change?

The efforts of the collectives and designers and artists and utopians at work in the Jugaad Urbanism exhibition might not yet be transforming the fundamentally chaotic structure of India, but they are undoubtedly improving a vast number of individual lives. And who knows where that grassroots work may lead? Cairo reminds us that sometimes, when we least expect it, something fundamental shifts and ideas that have lurked below the radar of public life swell up into something unexpected yet long awaited. There is always a fringe, an underground, a resistance made up of Margaret Mead's coven of the committed. What fortuitous component makes these human longings for equality, justice, and a voice take root and turn into a movement—even a revolution? Answers are elusive, but hope lies in the fact that it happens. Something rises from the ranks, emerging from the ground like cicadas after a long sleep. Another word: *demos*, of the people.

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The Soleckshaw, a solar-powered, motor-assisted cycle rickshaw, is designed by the Central Mechanical Engineering Research Institute in Durgapur, West Bengal.

