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## The Cycle Rickshaw's Electric Dreams

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New Delhi

THIS is a story about a mode of transport that rarely figures with transport planners. Its technology is as old as your grandparents. Its finance is uncertain — this is not the territory of banks or financial institutions. This is also about one of those supreme Indian ironies: It's been nearly a year since this ingeniously redesigned Indian vehicle was exported to the United Kingdom. But the motor-assisted pedal rickshaw, or MAPRA, as its inventor calls it, just isn't finding Indian buyers.

In the geography of small-town India, the cycle rickshaw — with its extreme manoeuvrability and affordability — is king. Yet, not only are its drivers mostly paupers, they must also bear some of the worst physical burdens on our roads.

If all goes well, the government might lend a helping hand to Anil Rajvanshi, whose team of grassroots inventors fixed a battery and small motor to the humble cycle rickshaw. In its present antique form, this bucket of bolts provides a hard living to at least — there are no reliable records of their numbers — two million Indians. At present, the ministry of non-conventional energy resources is considering a proposal to seed 50 of Rajvanshi's revolutionary rickshaws in locations all over India. That includes areas in need of quiet like the sprawling campuses of the Indian Institute of Technology (IIT) and tourist spots that need non-polluting transport, like the world heritage site at Hampi, Karnataka.

"We are trying out these vehicles as an alternative for the future," says J.R. Meena, director in the ministry. "But speed, range and cost are all limitations today." Meena says the electric rick has an advantage over other battery operated vehicles — experimental autos and vans — in that it can be pedalled as well. For now, he doesn't see them as more than technology demonstrators.

In a study published in the latest issue of the journal Current Science, Rajvanshi, an IIT graduate and Phd from the University of Florida, positions the new electric rick against its polluting petrol and diesel cousins, whose noisy, inefficient engines have fouled the air of towns and cities nationwide.

Rajvanshi says the electric ricks can increase a rickshaw driver's present annual income of Rs 12,000 to Rs 18,000 — apart from easing their back-breaking labour. The vehicle treads the middle ground between an unaffordable all-electric runabout and the mechanical wrecks on the streets. The motor kicks in only when the rickshaw reaches a speed of 4.5 km per hour.

Rajvanshi's credentials are impeccable: he's a visiting professor at IIT Powai, and last year he became the only engineer to win the Jammalal Bajaj award for application of technology for rural development. He's been a member of numerous state and central government expert committees on energy resources.

Cycle rickshaws have been the subject of numerous studies by economists, sociologists and engineers. But all of India's advances and engineering prowess hasn't helped change the cycle rickshaw fundamentally since a Jesuit priest welded a cycle wheel and pedals to the front of the hand-drawn rickshaw nearly 80 years ago.

Four of the electric ricks have been on trial at Pune University campus for the last nine months. But they haven't convinced those who matter most: the rickshaw overlords who control fleets of rickshaws nationwide. The rickshaw drivers who see the little motor kicking in after some pedalling are greatly enthused, but simply don't have the resources to buy one.



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"I haven't lost hope," says Rajvanshi, who's also created a more efficient manual version (with gears, improved suspension and braking) at his research base in the town of Phaltan, 100 km southwest of Pune in the heart of Maharashtra's sugarcane country. He is trying to enthruse rickshaw drivers to start cooperative societies, which can not just finance the rickshaw – they cost Rs 20,000 or four times the normal cost – but offer a source of electricity to recharge the battery.

"I'm even ready with my own money to fund a cooperative society, to set up the initial process," says Rajvanshi, an inveterate inventor who returned to India in 1981 after a teaching stint at the University of Florida, Gainsville. At Phaltan's Nimbalkar Agricultural Research Institute, where he's the director, Rajvanshi's barefoot scientists have created everything from multi-fuel lanterns to improved safflower seeds.

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