

## **Pedal Power as the 21st Century Charkha: Building on the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)**

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The MGNREGS is a radical measure, based on the concept of entitlement of the most vulnerable sections of the nation's citizenry, to (limited) fall-back employment legislated by the National Rural Employment Guarantee Act of 2005. By placing some minimal purchasing power in the hands of the rural populace, it offers them a basic safety net of sorts and a modicum of livelihood security.

The long-term viability of this landmark step will depend, however, on the impact the MGNREGS is able to make on the productivity of the agrarian economy through broadening and beefing up of the quality of the durable asset base in the rural areas over time. Basic infra-structure works (roads, water conservation, flood protection, irrigation, drought proofing, soil improvement etc.) are being taken up to that end, albeit not in a very concerted manner perhaps.

Generation of a crucial 'intermediate good' like energy is, however, not in the specified list of eight kinds of capital construction works permissible under the MGNREGS despite its all round, and immediate, impact on the quality of life (and therefore also on 'labour productivity' indirectly) through the extended waking, and working, hours it would enable. With almost a quarter of the country's villages (and half of rural households) without electricity, this is an omission that merits re-consideration.

'Renewable energy parks', based on the resource most suited to the endowment of each village—crop residues & human/animal excreta based bio-gas, solar, micro & mini hydel etc.—, could be a useful addition to the MGNREGS repertoire. A promising new possibility that deserves attention in this context is generation of electricity through mechanical means, by (an individual) pedalling a stationary bicycle (or by draught animals driving it in circular motion), as it can provide an immediate, if rudimentary, remedy of sorts for the rural electrification lag in remote areas and those too poorly endowed to permit local energy generation by other means.

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Pedal-powered generators (PPGs) advertised in the industrialised economies claim to deliver around 150-200 watts of power with an average female/male rider. (The yield is considerably lower, as yet, in case of the Indian manufactured ones, which are essentially pilot projects.) This translates into lighting 10-15 (11 watt) CFL bulbs. It means that a local grid providing basic lighting to four-to-seven neighbourhood house-holds (two CFL bulbs in each, connected in parallel, after allowing for some line losses) can be set up with one (stand-alone) PPG and supplied with electricity on a real-time basis (that is, whenever the PPG is pedalled). There is no need for any other equipment, such as a battery etc. (whose service life is critically dependant on proper maintenance, and therefore prone to stoppages in remote areas lacking in the requisite technically trained personnel). Of course, if a chargeable storage battery can be attached to the PPG, its versatility would naturally increase—it could then deliver power without the need for real time pedaling—but at a (substantial) increase in cost, as the battery would be the more expensive part of the equipment.

Likewise, use of LEDs in place of CFLs (with one-fifth the power consumption) can improve (extend) the reach of the local grid powered by a PPG, but again at a price. Labour (muscle) power and time—the only resource that the poor possess somewhat on par with the well endowed—are also the (only) inputs required to work the PPGs and produce electricity. Thus the PPG is a device particularly suited for programmes like the MGNREGS (and the JNNURM) targeting sections of the citizenry at the lowest rungs of the resource endowment ladder. No "skills" are needed to run it. It is gender neutral—women can also work it without any kind of difficulty or awkwardness.

Besides, it can be utilised 24/7, at convenience. This affords the invaluable facility of 'flexi-timings'—beneficiaries can attend to sundry tasks (in the fields or animal sheds during the day or in between) and still come back to complete the quantum of 'work' required of them for earning the day's MGNREGS

wages. It can therefore provide the ideal ‘off-farm employment’ for the marginal farmer, absence of which is the bane of the agrarian scene.

Moreover, a PPG-based MGNREGS will require minimal administrative paraphernalia, in comparison to capital construction (or even other renewable energy generation) projects. And the obvious environment sustainability and overall economic advantage from such clean, and locally produced, energy on a nationwide scale requires no elaboration.

Furthermore, once hydrogen as the clean fuel of the future (on which R&D is at an advanced stage worldwide) becomes commercially viable, energy evacuation should be feasible (through production of hydrogen gas in the village, by electrolysis of water through PPGs). That could transform the villages into potential net exporters of energy, even without their being connected to the national grid—a game-changer for the nation’s overall energy security (and for the rural-urban equation that has, historically, been tilted against the former everywhere in the world). The prospect of a ‘hydro-carbon free’ rural energy scenario would, in itself, be a gain incompare.

There would therefore seem to be a strong case for setting up national Technology Missions on the PPG and on hydrogen energy fuel. An all out R&D effort to make the technical efficiency of these two technologies cost-effective and comparable to the best globally is called for—as a publicly proclaimed priority goal for realisation within a time-bound framework, a la late President Kennedy’s 1962 pledge to put “man on the moon before the end of the decade”.

Finally, the PPG can offer wider benefits, extending well beyond economic (energy and environmental) gains. Being an individual activity essentially, it would be easily replicable in the urban areas (in particular amongst the affluent), with considerable health benefits for those leading sedate lives—preventively lowering incidence of heart and other life style ailments to larger societal advantage. At the same time, it would afford the ‘privilegentsia’ a ready way of identifying with the under-privileged—through ‘shramdan’ on the PPG. The latter is an important desideratum, in the ultimate analysis, for success of the ‘inclusive’ growth approach that is gradually gaining consensus in the national polity now (even if it be more as lip-service than in substance)—as was Gandhiji’s rationale for advocating popularisation of the charkha.

A PPG tapped nation-wide ‘shramdan’ programme (covering all citizens fortunate to enjoy the convenience of hydro-carbons based energy) could provide the much needed missing link between ‘globalising India’ and the rest of India (Bharat)—a ‘disconnect’ that is being better understood, and increasingly acknowledged, now as the core of the ethical dilemma underlying the development model pursued by the State post-liberalisation of the economy since the nineties.

‘Inclusivity’, and the ‘bottom billion’, have been much talked about—they are buzz-words now—but a truly inclusive development strategy (as opposed to tokenism) has yet to see the light of day. Such a strategy will require, inter alia (in the words of a UNDP official at a seminar in the capital late in 2009), “directing resources to the sectors in which the poor work (such as agriculture and informal activities), areas in which they live (relatively backward regions), factors of production which they possess (unskilled labour) and output which they consume (such as food)”.

With its heart in the right place, might the MGNREGS—re-conceptualised as the centre piece of a new compact between the State and society according greater primacy, and urgency, to addressing the challenge of poverty than hitherto—serve as the core of such an ‘alter-native’ approach woven around the desideratum of catapulting the village into the modern age on the strength of technology and transparency (as against waiting for it to trickle in, unaided, in due course)?

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