

Of Tractors And Cellphones

A little bit of modern technology, a lot of 'jugaad', and farmers are making up for a clueless government

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The chattering classes of urban India are engaged in animated discussions about Didi, scams, policy paralysis, faltering reforms and declining growth. Meanwhile, the farming classes, who haven't seen much reform since the Green Revolution 50 years ago, continue to combine bits of modern technology with their ingenious capacity for 'jugaad' in transforming traditional agriculture. Here are a few examples.

The tractor displaced the bullock in ploughing and other farm operations. With a trailer attached, it has also displaced the bullock cart in transporting everything from construction materials to farm produce to people. Tractors also double up as earthmovers, dumpers and even motors for water pumps when there is no power supply.

This shift from the bullock to the tractor has had far-reaching effects. With milk prices soaring, cows are much in demand. But nobody wants the bulls. They are no longer required to pull ploughs or carts, and not many are required for procreation since the advent of artificial insemination, another modern innovation. So the male calves have short lives. At the earliest opportunity they are transported – legally or illegally – to the nearest butcher or slaughterhouse, or smuggled across the border.

The bull culling has played havoc with the bovine gender balance. It has also depleted the supply of gobar. It is a significant impediment to the resumption of

organic agriculture, which our farmers practised till the Green Revolution came along. Also, organic agriculture cannot match the productivity of chemicals-based agriculture. However, farmers are well aware of the risks of such agriculture. Typically, they maintain a home patch where they grow crops organically for home consumption. The produce of chemical agriculture is all for the market. I sometimes wonder whether our rising incidence of cancer is only because of our toxic air and water, or also because of the toxic residues in the farm produce we consume.

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The cellphone is another innovation that has radically transformed rural markets. While policy wonks debate whether to reform or scrap the Agricultural Produce Marketing Committee Act to improve market efficiency, farmers have greatly enhanced efficiency by recourse to the cellphone.

Visit any village and you will notice that as a crop is readied for the market, the farmer will usually make a few 'missed calls' – another fabulous Indian jugaad – to auctioneers. Within minutes



No infrastructure? No problem

he will get return SMS messages giving him the current price in each market, and he knows where to go for the best price. With thousands of farmers undertaking the same process of price discovery, the outcome is a highly efficient market.

I have seen itinerant fish traders do much the same thing in the fishery belts of Bengal and in Rajasthan and Haryana, but with additional jugaad for a cold chain. At the crack of dawn, the trader and his team will drive their truck to an appointed tank. The front of the payload bay is converted into a makeshift fish container with PVC sheets. In the rear half, the boys crowd in with slabs of ice, fishnets and other equipment.

On reaching the site, the net is spread across the tank and drawn in with the catch. While the fish lies corralled in the tank, the container is filled with water and slabs of ice. The cold chain

has now been established. The fish are then weighed, a drum full at a time, and poured into the container. The fish will remain alive in this cold container for a couple of hours till they reach the market. Meanwhile, the trader sends out his missed calls, gets his wholesale price quotes, and decides where to sell.

These are just a few examples of the many ways in which farmers have adapted 'modern' technical elements to local conditions through their jugaad, transforming traditional agriculture. But if our farmers have been so innovative, how come agricultural productivity has only grown at less than 3% a year over decades?

There is no simple answer to this question, but a major part of it has to do with the large variations in performance between crops and across states in our vast country. While average food-grain productivity is 2,000 kg per

hectare, wheat productivity is 3,000 kg per hectare, and has reached 4,000 kg in some parts of the country. If best practices achieved within the country could be disseminated throughout the country, India's agricultural performance would compare reasonably well against international benchmarks.

However, that is easier said than done. Inter-regional variations in soil, topology and climate apart, the total cultivable area in the country is limited. Productivity growth can only be sustained through multiple cropping, which requires irrigation. But only a third of the cultivated area is irrigated, the rest is rain-fed. In foodgrains, for instance, it has taken 40 years to double productivity, and this is mainly attributable to a doubling of the foodgrain area under irrigation over the same period. The increase has mainly come from private investment in tube-wells. This has been depleting groundwater in the absence of adequate recharging through surface irrigation projects.

Such projects can only be undertaken by the government. Thus, our farmers' initiatives notwithstanding, rural transformation remains dependent on government action. Agriculture is a state subject and should be a high priority for the state governments. However, their combined allocation for agriculture and allied activities is only 6% of their total plan expenditure. Need we say more?

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